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# THE AMERICAN FARMER

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THE AMERICAN FARMER.

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# DR. D. E. SALMON,

## Chief of the Bureau of Animal Industry of the U. S. Department of Agriculture.

BY HARVY AUSTIN.

THE GREAT popular interest which has been manifested during recent years in the work of the Bureau of Animal Industry of the Department of Agriculture leads us to present to our readers in this number of THE AMERICAN FARMER a portrait and biographical sketch of Dr. D. E. Salmon, the well-known Chief of that Bureau. For 13 years Dr. Salmon has been in the service of the Department of Agriculture, constantly studying the questions relating to the animal industry of the country which, because of their importance, are referred to a Department of the National Government for investigation and solution. It is probable that there is no one in the country who is so well informed in regard to the obstacles which prevent an increased prosperity among our stockmen, or who better understands the measures which are required to remove these obstacles or to avoid their effects.

Dr. Salmon was born at Mount Olive, Morris Co., N. J., in 1850. He grew up on a farm, accustomed to farm work and the handling of stock, and he knows from personal experience what is required to make stock raising successful.

He entered Cornell University a member of its first freshman class, at the opening of that great institution in October, 1868. Here he became acquainted with Prof. James Law, who had just come to America to fill the chair of Veterinary Science at this new institution. At that time the veterinary profession in the United States was in its infancy, and there were few who realized the importance of instruction in this science, or who could see any reason for including this class of studies among the branches taught by our higher institutions of learning.

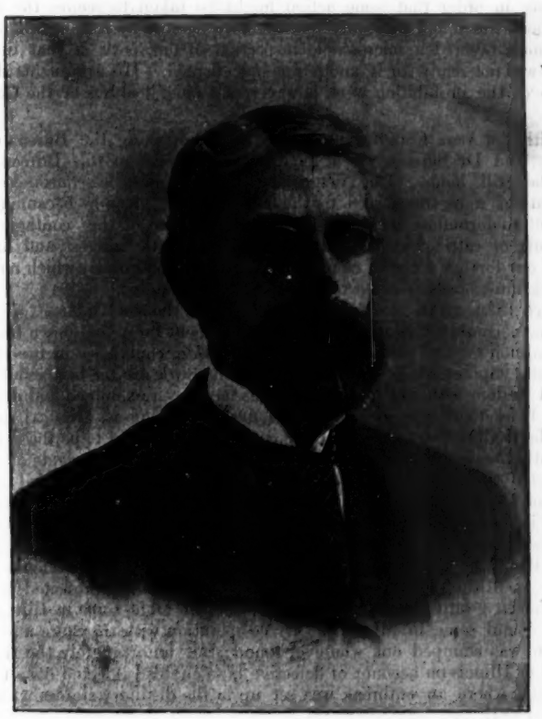
It was the aim of Ezra Cornell, however, "to found an institution where any person could find instruction in any study," and with an admirable appreciation of the value of knowledge concerning the diseases of animals, and a keen foresight as to the rapid growth and popular demand for education in all branches relating to agriculture, he determined that veterinary medicine and surgery should be well represented in the faculty of the University which was to bear his name.

Very early in his course at Cornell the subject of our sketch became impressed with the importance of the position and work which were soon to be assumed in this country by educated veterinarians. His experience on the farm had taught him how seldom animals receive intelligent treatment when they are sick, and his studies now led him to appreciate the enormous numbers of animals comprised in the flocks and herds of the country.

The vast amount of wealth invested in domesticated animals was practically without protection from disease. Many of our States were without a single veterinarian competent to diagnose the most dangerous of the animal plagues liable at any time to invade our pastures, and even less competent to give intelligent advice for their control. Massachusetts had only recently succeeded, after a six years' struggle, in eradicating an outbreak of pleuro-pneumonia, which might have been stamped out in as many months. Investigations had just revealed the existence of this same contagious disease of cattle from Long Island, N. Y., on the north, to the District of Columbia on the south. The most extensive outbreak of Texas fever ever known in this country, and which resulted from the wide distribution of Southern cattle over the Northern States in 1868, had just attracted the attention of thinking persons to our ignorance of animal diseases and our helplessness when confronted by them. Hog cholera, considerably disseminated before the war but lost sight of for a few years on account of the stirring events of the times, was again made prominent by its ever-increasing ravages. Across the Atlantic foot-and-mouth disease and rinderpest were doing their deadly work among the flocks and herds of Europe, and were liable to be imported at any time. The existence of these dangerous and fatal diseases—some already among us, the others within danger limits—gave unmistakable evidence that our National and State governments would soon be led by force of circumstances to appreciate the value of veterinary science.

With the situation as here described presented before him, it is only natural that one who had just come from the farm and who had the farmer's interest at heart should take advantage of the opportunities which were offered by the new veterinary course at Cornell and adopt with enthusiasm this much-neglected study.

After four years' of faithful study Dr. Salmon graduated in 1872 with the degree of Bachelor of Veterinary Science. The same year he visted Europe, and after remaining two terms at the French Veterinary School of Alfort returned to America and began the practice of his profession in Newark, N. J. In 1876 Cornell gave him the advanced degree of Doctor of Veterinary Medicine. In 1877 he was non-resident Lecturer on Veterinary Science in the University of Georgia.



DR. D. E. SALMON.

The appropriation by Congress in 1878 of $10,000 for the investigation of animal diseases led to the appointment of Dr. Salmon and a number of other veterinarians, who were directed to devote two months to the study of swine diseases. It was not to be expected that the whole problem of swine disease would be solved in that brief period, but these investigations were successful in demonstrating the existence of a widely-disseminated contagious disease; and they forever disproved the opinion, then prevalent, that the great losses among swine were due to sporadic disease rather than the effects of contagion.

The State of New York attempted to stamp out contagious pleuro-pneumonia in 1879, and Dr. Salmon was appointed on the veterinary staff as an assistant of Prof. Law. He labored with great zeal and devotion during the Spring and Summer, but the inadequate appropriation was exhausted by Fall and the force was

disbanded. He was at this time offered a commission from the United States Department of Agriculture to investigate animal diseases in the Southern States, and he began that extensive study of contagious diseases which he has not yet discontinued, and which has done much to advance science and to make his name famous.

It was during these investigations that Dr. Salmon demonstrated the identity of the "distemper" of Virginia and North Carolina with the "murrain" of Georgia, Alabama, Mississippi, and Tennessee, with the "acclimation fever" of all the Southern States, and with the Texas fever of the North and West. He directed a careful survey of the whole country, from the Atlantic seaboard in Virginia to the Rio Grande River, mapping out with great accuracy the district permanently infected, and showing that Northern cattle taken into that district contracted the same disease that was disseminated by Texas and other Southern cattle when taken North.

Early in 1880 he began his investigations of the bacteria causing disease in animals, and was probably the first scientist in this country to properly cultivate the germs and to use the modern methods of research. In his studies of fowl cholera he disproved several of Pasteur's theories, and proved that the cultivated germs might be used as a vaccine by diluting the cultures to a sufficient degree and inserting a small quantity beneath the skin. The studies of immunity made at that time led to the theory that contagious diseases could be prevented by the use of the chemical substances or ptomaines formed during the growth of the germs in culture liquids. This theory he afterward demonstrated, and his writings on the subject stimulated the investigators of the world to take up the question and search in this line for practical means of preventing contagious diseases. These researches are even now being continued in all parts of the world, and have opened up a new field to be occupied by medical science.

In May, 1883, he was called to Washington by Commissioner Loring to establish a Veterinary Division in the Department of Agriculture. A plan was adopted for an extensive investigation of animal diseases, a laboratory was fitted up, and land was rented near the city for an experiment station where affected animals could be kept and studied.

During this year he was appointed by President Arthur a member of a commission to investigate the quality of our pork products and the prevalence of trichinosis, in order that some action might be taken to secure the removal of prohibitions which had then only recently been decreed by European Governments. Dr. Salmon favored a microscopic inspection of our pork at that time, but the country was not ready for it, and it was not adopted. His arguments showing the injustice of the prohibition were, however, the chief features of the Commission's report.

Within a year Congress passed an act establishing the Bureau of Animal Industry, and Dr. Salmon was at once appointed Chief of this Bureau, a position which he still holds. The Veterinary Division was discontinued and the investigations were transferred to the new Bureau. It now became the duty of the Chief to formulate measures for the eradication of the contagious pleuro-pneumonia of cattle, which threatened our vast cattle interest, and had already crippled our foreign trade by causing restrictions abroad under which our exported live stock must be slaughtered on the docks where landed.

Since 1884, all the great questions relating to the stock interests of the country which have come before the National Government for action have been referred to Dr. Salmon for his opinion. The ever-increasing confidence in the Bureau and the popular support which has been given to its work are the best evidence of the care and wisdom with which these questions have been examined and decided.

In 1884 there was an outbreak of disease in Kansas, Missouri, and Illinois which the leading veterinarians of the country pronounced to be the dreaded foot-and-mouth disease of Europe. The country was alarmed, shipments of stock from the infected States were prohibited, and an appropriation was hurried through one branch of Congress to stamp out the disease. Dr. Salmon was sent to make a personal investigation. He promptly decided the disease to be ergotism, the panic was arrested, and in a few weeks the disease disappeared, as he predicted it would.

In the same year he discovered an outbreak of pleuro-pneumonia in Illinois. By three months of hard work in the field he traced all the infected herds which were connected with this outbreak, some being in Ohio, some in Illinois, some in Kentucky, and some in Missouri. By co-operation with the State authorities the contagion was stamped out wherever found; but unfortunately the delay which occurred in Illinois on account of defective laws enabled infected cows to be taken to Chicago, where an outbreak was set up in the distillery stables which was not discovered until two years afterward.

The great work of eradicating pleuro-pneumonia from the country was begun in 1887, with larger appropriations and more efficient laws. The disease then existed in New York, New Jersey, Pennsylvania, Delaware, Maryland, District of Columbia, Virginia, and Illinois. The task was an exceedingly difficult one, and had been given up in discouragement by everyone who had previously attempted it. The funds were by most people deemed insufficient, and the laws at best were very defective. Worst of all, our people were not accustomed to the rigorous restrictions and arbitrary measures of inspecting and condemning cattle which it became necessary to inforce. The work was, however, undertaken systematically, one obstacle after another was overcome, and one infected district after another was cleared of the disease. It was, therefore, but a few months before the stockmen had the satisfaction of knowing that the extension of the disease had been stopped, and that its old lurking places were being gradually renovated. They breathed freer and gave the Bureau such hearty support, that it was able to increase its force and continue its work with greater energy and success than before.

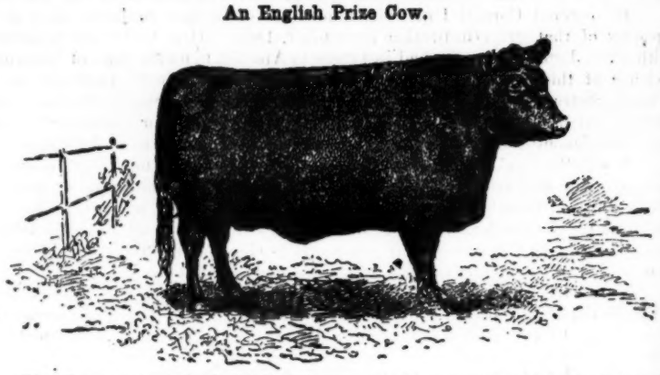
When the Department of Agriculture was made an Executive Department and Secretary Rusk was called to administer it, the work of the Bureau of Animal Industry received increased impetus. The new Secretary understood the needs of farmers; he appreciated the great good which would come to our agricultural interests if the restrictions and prohibitions against our export trade in animals and their products were withdrawn, and more than this, his practical mind at once grasped the policy which it was necessary to pursue in order to accomplish this result.

By judiciously making use of Dr. Salmon's scientific and special knowledge of these important subjects, Secretary Rusk, with his own great energy, influence, and his intimate knowledge of affairs and diplomatic methods, has been able to accomplish in three years what other administrations labored upon for twice that period without making the least progress. The pleuro-pneumonia work has been continued until the country is at last free from that disease. The scientific investigations have solved the mysteries connected with hog cholera and Texas fever. Our live cattle are inspected, numbered, and guaranteed free from disease when they go on board ship for foreign countries. The ships which carry our animals are inspected, and the requirements as to space, fittings, and ventilation must be complied with before they leave our ports. Our pork is inspected microscopically, and the markets of the whole world have been opened to it. Beef and mutton killed for inter-state and foreign commerce is inspected where slaughtered, and bears a stamp to show the healthfulness of the animals from which it came. Southern and Northern cattle are so separated in stockyards and stock-cars that the losses from Texas fever have become a thing of the past and are no longer dreaded. Imported animals are carefully inspected and quarantined.

This is an outline of a great system of inspection and regulation directed by the Bureau of Animal Industry which has already saved millions of dollars to our farmers, and which is destined to save them many millions more. There can be no doubt that it is the scientific knowledge, the professional skill, and the untiring industry of Dr. Salmon which has made these regulations conform to the requirements of the subjects to which they are applied and that has insured success to each of these undertakings.

In saying this it is not our purpose to detract in the least from the credit which is due Secretary Rusk for the still greater task which he has accomplished and which has made his name a household word in all parts of the country and among all people interested in agriculture. It was for him to mark out the policy of the Department; to secure the means for carrying it into effect; to bring the power of the Administration to its support; to avoid the dangers and pitfalls with which he was surrounded; to contribute the knowledge obtained from his practical and business training, his energy, and his great natural ability. In developing his broad-minded and patriotic policy he has, however, had a loyal and admiring subordinate in Dr. Salmon, whose every thought and effort has been to secure the highest measure of success to the administration of his chief.

### An English Prize Cow.



The above portrait is the Polled Angus "Achievement," which has taken the first prize in a number of the great cattle shows in England. She was sired by Evander, 3,717; dam, Abbess III., 3,616. She was the seventh successive heifer calf which her dam produced, and through her goes back to the well-known Easter Tulloch stock.

### Pollination by the Yucca Moth.

Her activity begins soon after dark, but consists at first in assiduously collecting a load of pollen. She may be seen running up to the top of one of the stamens, and bending her head down over the anther, stretching the maxillary tentacles, so wonderfully modified for the purpose, to their fullest extent, the tongue uncoiled and reaching to the opposite side of the stamen. In this manner she is able to obtain a firm hold of the same while the head is kept close to the anthers and moved peculiarly back and forth, something as in the motion of the head of a caterpillar when feeding. The maxillary palpi are used in this act very much as the ordinary mandibles are used in other insects, removing or scraping the pollen from the anthers toward the tentacles. After collecting all the pollen from one anther, she proceeds to another and repeats the operation, than to a third and fourth, after which, with her relatively large load—often thrice as large as the head—held firmly against the neck and front trochanters, she usually runs about or flies to another plant; for I have often noticed that oviposition, as a rule, is accomplished in some other flower than that from which the pollen was gathered, and that cross-fertilization is thus secured.—*The Popular Science Monthly.*

# SWISS FARMING.

## Intensive Culture—Grape Growing and Dairying—Swiss Love of the Fatherland.

WALTER MAXWELL.

SWISS agriculture and the Swiss farmer embody and exhibit the most emphatic characteristics of the small but famous Helvetian Republic. It is not necessary to go back over many decades in order to find that the farming and husbandry of the country expressed its whole industrial and social economy and its national life. And to-day, notwithstanding the watch-making of Geneva, the silk looms of Zurich, and the chemical and textile manufactures of Basle and other towns, the broad and dominant industry of the land is that which embraces the keeping of the vineyards and the tilling of the soil. Of the population of Switzerland almost one-half are occupied directly or indirectly with the land.

The agriculture of Switzerland is resolved by the physical conditions of the land into three natural kinds: The intensive farming of the small and rich valleys, the vine culture and husbandry of the hill slopes, and the Summer grazing of the pastures on the tablelands of the lower Alps. Beyond and above these "under Alps" we enter upon a region of glaciers and mountain peaks—a great territory given up to an unbroken season of ice and snow.

The valleys of the country are small and very compressed, in comparison with the ranges and breadths of sterile mountain land which lie between, but the soils are often as dark and rich as the prairie lands of Nebraska. And the

AN ALPINE GLACIER.

streams of pure water coming down from the snows of the Alps and watering the valley-beds, with a climate genial and secured by the protection of the hills, all these natural conditions contribute to provide a fertility which is very great, and that never fails.

Those rich valleys are populated almost to congestion with a people that has proved and ransacked every native resource for a livelihood. Every foot of available ground is reclaimed and turned to account. Even the steep and apparently barren mountain sides have been taken hold of, and we find the precipitous slopes tamed and formed into fruit and vine-bearing terraces. The land in those valleys, with a population so dense, has a great value; whilst to purchase, it is almost fabulously dear. And it is seen that a system of farming the most enlightened, and the most intense, must be pursued in order that the production shall be made commensurate with the needs of the locality and the cost of the ground.

There are no large farms or holdings, unless it may be an exceptional estate or "Landgut," which is still reserved by the descendant of an old and noble family. The farms of the "Bauern," or farmers, range in size from five acres up to 50, and seldom exceed the latter extent. Consequently every available yard of space has to be cultivated, fertilized, and reaped in order that the occupant may, in the first place, obtain a living. The crude and hasty methods which exist in new countries, where the virgin soil needs but to be scratched and a livelihood, and more, is obtained, would not avail where there is so little land to produce and so great a demand upon its productions.

The products of Swiss farming are very largely limited to the more perishable articles. The great staples of the public's diet are not produced within the country's borders. Wheat and rye are imported from Germany, and the great source of the meat supply is the Austrian Tyrol, from whence are drawn vast consignments of oxen. The main products of the Swiss valley farmers are milk, butter, cheese, vegetables, fruits, honey, tobacco, with small proportions of cereals, and of beef and pork.

If we take a typical Swiss valley, such as the fertile valley of Zurich, in north Switzerland, which lies but a short distance from the German frontier, or the Næfels, Mollis Vale, in Canton Glarus, we see the small Swiss village made up chiefly of the houses and homesteads of the small landmen, and the small grass farms lying within a moderate radius round about. Or, as often, the home and homsteads are scattered with the holdings about the valley, and the "Bauer," or farmer, is sitting in the midst of his acres of grass. The tracts of meadow or grass are here and there broken up with acre or half acre patches of grain, or of vegetables and small fruits. Over the whole breadth of the small farms, including the grass land as well as the plats under the plow, fruit trees of cherry, apple, and pear are generally but thinly distributed; so that a Swiss valley farm may be called an orchard, with most of the under-space "sown to grass;" and with small patches of garden culture laid in, and in the Spring season, in late April and early May, when the cherry and the apple are in full blossom, some Swiss valleys appear as one vast orchard, with the homesteads and villages almost hidden in its midst.

The Swiss farmers understand the management of grass lands and the growing of fruits. We have never seen gathered elsewhere so many tons of grass, as green feed, or made into hay, as were yielded by the lands in the valleys to which we have referred. The first crop was cut, being 12 inches high and very thick on the ground, the first week in May. Another crop was ready for use, as green feed, by the beginning of July, and in the middle of September a hay crop was being taken off, which would not be a bad showing as the total product of the year. The number of head of cows which are supported, and the volume of milk afforded by the produce of one acre, cannot be comprehended by one unacquainted with the conditions of small farming in Switzerland.

It will be asked "What is the cause—the secret of such productiveness?" It is found in the system of fertilization pursued by the Swiss farmer; which system is resting upon a broad intelligence, combined with the most rigid economy and thrift. It is a system, however, which belongs exclusively to agriculture, subsisting under the most intense conditions.

Where the farmer understands the requirements of his land and the need of rational fertilization in order to keep up its standard of productiveness, and when he knows likewise the comparative values of the different forms of natural fertilizers which are made upon his homestead, he watches and prevents anything going to waste. The Swiss, like the peasant farmer in France, is a model of care and economy in utilizing the natural manurial products of his farm. The first crop of grass is cut daily as required and consumed by the cattle in the stalls. The liquid fertilizing matters are most scrupulously collected in tanks, and, with the solid matters, also, are conveyed back to the land, and thus the excrement products of the first crop are immediately utilized in furnishing nourishment for the production of the second. And the care of the Swiss peasant in using those fertilizing agents is almost ludicrous. Not a drop, not a particle, is suffered to go astray. He knows, however, that the vitalizing ammonia is contained in the liquid which has collected in the tank, and he knows also that the nitrogen of the same is the mainspring of his system and the basis of his success.

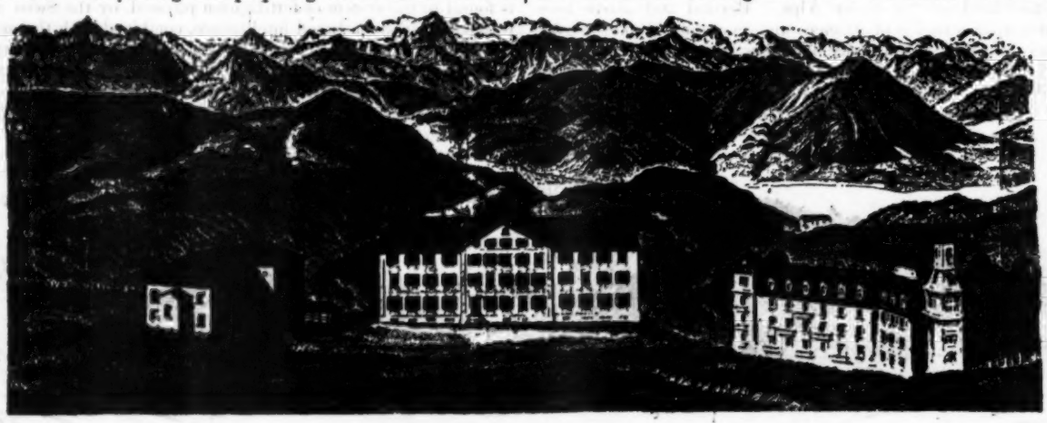
Happily for us, in this great country of unexhausted—we might almost say untouched—natural resources, we know nothing of the need of such a system of fertilization. In the Eastern States it is little observed; and in the States of the West—here in Nebraska—we are driving daily over roads which are levelled and made passable by the use of refuse from the stables. We may, however, endeavor to reflect upon the capabilities of this country when its agriculture, under the force and increment of new conditions, has become even approximately as intensive as the farming in Switzerland.

The cow is essentially the pivotal factor in the small farming system of Switzerland, and likewise of other countries. In the economy of the small farm, as well as of the large holding, there are included the agent and cost of production and the nature and value of the product. Upon the large farms the agent of production, considered in the form of labor, is generally the horse. The horse, as a labor factor, is the most convenient and capable within our command. But, as a rule, the horse is exclusively an expending power. The equivalent it renders for the cost of its own maintenance is labor, and not an article of human consumption and support. On the other hand, the pig renders no labor in return for the value of what it consumes. It is not a labor power, but an agent converting the substance upon which it subsists directly into a form suitable for human maintenance,

which is the end of all labor. In the cow, however, we have a combined power. An agent in which the function of rendering labor and of yielding directly the elements of human subsistence can be and are united. Upon a great farm whose conditions are extended to a large scale, it is usually the best practice and economy to divide the expending and producing powers. The horse is chosen and set apart for the function of labor and outlay. The office or power of the cow is confined, in addition to the work of propagating its kind, to the direct provision of the everyday articles of human diet and subsistence.

The size and resources of the small farm—of the peasant holdings in Switzerland—are not capable of supporting a distinct labor power, and a distinct power of production. If horses are kept for performing the acts of labor on those small places they consume the whole of the product of their labor in the shape of food; or, in other words, "they eat up the place." Now, the one animal, as it has been said, which is capable of combining the function of labor and the power of direct production in one agent—is the cow. The cow consumes a given quantity of food—a quantity, we will say, equal to the consumption of the horse—and the returns for that food consumed are rendered partly in affording labor for the production of more food, and partly in the direct form of nourishment for human uses.

The cows of the Swiss valley-farmers haul the grass and hay from the field to the barn, and the refuse, as fertilizers, from the stables back to the field again. They also haul the vegetables, fruits, and butter and eggs to market, and the lumber down from the hills. The plowing and preparing of the small tracts of ground for cereal and vegetable crops, in fact all the animal labor, is done by the cows, excepting on the larger farms, where it is done in part by the cows and also by horses. But when the cow has hauled in the feed for her own supper she goes to the stable and at once provides the nourishment, in the forms of milk, butter, and cheese, for the support of the farmer and his family. And it is but little that the Swiss farmer's family requires beyond what is afforded by the cow and the vegetable patch.



MOUNTAIN FARM AND TOURIST HOTELS.

Very little attention is given to the male cattle by the small Swiss farmers. The male calves are usually fatted and killed as veal. When looking over some Government statistics, at the time we resided in Switzerland, it was observed that the number of head of cattle in the Canton of Zurich was 74,000, of which 65,000 were cows and heifers, and about 9,000 were steers. The cow, the meadow, the orchard, and the vegetable ground comprise the main components and sources of the valley-farmer's livelihood and wealth.

The farming, or husbandry of the vineyards, is sometimes attached to the grass or valley farm, and the farmer divides his care between the management of the orchard and meadow and the tending of the vines. Very often, however, the vineyard men have no other crop, or very little, than the vine; and their whole attention is given to the grape and the production of wine. Whilst residing in the house of a grape-grower, situated in the midst of his vineyard, for a considerable length of time, we noticed that he did not grow grass enough to support his one little team of cows.

In some parts of Switzerland tobacco is planted to a considerable extent in the valleys. There are, also, particularly toward the southern part of the country, Cantons in which the culture of silk is extensively pursued. And those branches of the farmer's occupation furnish the natural products which keep in action the factories of Zurich and other towns.

The hill-farming in Switzerland, as it has been said, is exclusively grazing. The heifers and cows not in milk, which have been Wintered down in the valleys and more sheltered places, are gathered into large herds in the Spring and driven up into the mountain regions for the Summer.

No better opportunity offers for observing the nature of hill-farming, and the habits and life of the mountain farmers, than the journey from the Valley of Chur up through the great mountain passes to the Engadine. After leaving the valley, the road leads up through dense and heavy woods, which cover the mountain sides even to the feet of the glaciers and unmelted snows. At different altitudes, varying from 2,000 to 7,000 feet, the slopes of the hills are broken up by great breadths of tableland, which undulate and fall away into small valleys, or lead up to higher levels of mountain land. Those open breadths of level and rolling ground are covered with short and rich herbage, and form the Summer pastures of the "mountain cattle." The herds of cattle are not kept within those spaces of open pasture, but are let to rove through the valleys and over the mountain range in search of the grass, which appears to become more sweet the higher up the hills it grows.

The tourist in the Engadine knows what a feature the herdsman and the mountain herd lend to the scenery and life of that region. When the wanderer leaves his hotel in Saint Moritz or Pontresina in the early morning, before the sun has lifted the heavy dews from the mountain rose, and strolls away into the woods, he hears the bells which tell that the cows are coming down to be milked. And when the mild, sleek-coated creatures have yielded up their earnings of the night they draw up again into the woods to browse the undergrowth, and rest or wander till the evening calls them down again. In the quiet of the hillside shade, there appear no sounds of life to the ear but the fall of the mountain stream and the distant echoes of the cow-bells.

It is, however, hard to speak of the flocks and herds of the Engadine in the language of practical farming. It is difficult to think of the kine of Switzerland and the steers of Texas together. And the herdsmen of the Swiss mountains, and the cowboys and Rustlers of Wyoming, how shall they compare?

Large flocks of sheep are pastured in some of the mountain valleys. They are still and docile-looking animals. Unlike the great wandering flocks of Wyoming and Montana, they move and feed in slow and crowded heaps. The shepherds, like the flocks they tend, are also still and grave, and wear flowing robes and staff as did, we are told, the flockmen of Abraham. And another patriarchal semblance of those men is that they never drive their flocks; they go before, and the sheep "hear their voice and follow."

The Swiss farmer is a strong and sturdy being. Born and brought up on the same sod and soil as the generations of his fathers before him, his views are narrow and his horizon small. Owing to the smallness of his conditions, his individuality is of small proportion; but it is inviolate, and he yields it to no man. He is not an unsociable and melancholy man, notwithstanding the aspect of apprehensive graveness which rests upon him, and which he appears unconsciously to gather from the awe-giving and sublime aspects of nature around. After the labor of every day, and on the numerous holidays of the land, he gathers up with his neighbors to the village, and there the "wine flow," the card table, and the dancing hall show him to be a free and a very merry man. He is, though, Swiss, as the mountains and valleys of his country are Swiss. Often quiet, and apparently very stolid, he usually belies the fervent nationality and patriotism within, and which only a forced occasion will cause him to unfold. The pride and valor of his forefathers, however, which swept the Austrian legions from every hill and valley of the land, have come down to him with their names. And if the times should demand, he would be strong and ready as they who, four centuries ago, "glowed with love for the Fatherland and stepped over into eternity."

### Going to a Fair in Korea.

Trade, which was not active on the Seoul-Wen-san route, was particularly stirring along the east coast. It is mainly in Manchester cottons. Fairs were common between Wen-san and Puk-ch'eng—as they are in all the populous districts of Korea. The road was always animated with a concourse of merry, brightly-dressed people, wending their way to the market town; women carrying jars and baskets of melons, pears, chillies, etc., on their heads, and babies on their backs; bulls and carts laden with brushwood for fuel; produce of all kinds, including grain and dried fish, borne by ponies and men; sturdy, half-nude coolies, perspiring under lofty, wooden frameworks, to which assortments of earthenware pots and turned wooden dishes are attached; and, more numerous than all, the pleasure-seeker, or *ku-kyeng-kun*, in holiday dress, strutting along in company with a batch of friends, gesticulating, laughing, and cracking jokes productive of the most hilarious mirth. Such throngs greeted the foreigner with amused surprise, sometimes a trifle rudely, but always good-naturedly. The women, in most cases, behaved as properly conducted Korean women ought to do when their faces run the risk of being scanned by a stranger, and turned their backs upon him; yet frequently all scruples vanished before an overpowering curiosity to take in the particulars of so odd a costume, or to discuss the singularity of the equipage. The main street of the town or village is the market-place. It often widens into a sort of place or square, where straw booths are hastily erected for the occasion; but, ordinarily, each man exposes his wares on some boards, or on a cloth spread on the ground in the best spot available. The articles for sale are of the simplest.—*The Popular Science Monthly.*

Locusts are used as a food by the natives of South Africa, being prepared by pounding them into a fine meal and then cooking.

# PROGRESSIVE AGRICULTURE.

## The Most Recent Discoveries, Developments, and Ideas in the Science of Farming.

### Sirups and Molasses.

IN THE last number of THE AMERICAN FARMER attention was called to the intimate relations existing between the production and consumption of sugar and our agricultural prosperity. Of almost equal importance is the trade in sirups or molasses, honey, and confections. Unfortunately for the purposes of exact description the data at hand concerning these articles of commerce are not so exact nor complete as those relating to sugar. The quantity of molasses imported into the United States for the year 1891 was 20,604,463 gallons. This imported molasses was chiefly used in the manufacture of sugar, and should not be regarded as an important factor for table use. With the advent of free sugar the use of imported molasses for the above purpose has become so little profitable as to secure the closing of the greater number of molasses-sugar houses. The statistics for the present year will show a great falling off in the quantity of molasses imported.

During the year 1891 there were made from sugar-cane, chiefly in Louisiana, 29,200,000 gallons of molasses. This product was largely centrifugal seconds; that is, molasses from which two crops of sugar crystals had been taken. This molasses is either consumed directly or used in mixing with glucose, as will be described hereafter.

The amount of sorghum molasses made is largely a matter of conjecture. From such figures as are at command it is but fair to estimate the annual output of sorghum molasses at not less than 30,000,000 gallons. To this quantity must be added the maple molasses, equivalent to at least 3,000,000 gallons, and the mixed goods made from glucose and New Orleans or sugar-house molasses. This is another indefinite quantity, but cannot be much less than 30,000,000 gallons. The total quantity of sirups and molasses, therefore, imported into and produced in this country does not fall much short of 100,000,000 gallons. Deducting from this sum the part used for reboiling for sugar and for mixing with glucose, etc., and we have as the amount delivered for consumption about 60,000,000 gallons, or in round numbers about one gallon for each inhabitant. In general terms it may therefore be said that for each person in the country one gallon of sirup or molasses is consumed for table use. Indeed, I would not be surprised should the quantity be found to be much greater than this, since the domestic product is made up of so many small lots as practically to escape exact enumeration.

Molasses may be defined to be the pure, unmixed, uncrystallized product of sugar-cane, sorghum, and maple. Sirup may be defined as any product made by mixing molasses with glucose or other bodies. There is, however, much confusion in the use of these terms, and they are often interchanged.

### Adulteration of Molasses.

It was a matter of congratulation when writing of sugar to be able to say that it was entirely free of adulteration. When it comes to molasses almost the contrary is true. While all molasses is not adulterated, yet the practice of mixing, which is true adulteration, is so universal as to make it difficult to get on the open market a genuine product of sugar-cane, sorghum or maple. It has long been known that a great part of the maple molasses sold on the market was not the genuine article. It is either mixed with sirup made from brown sugar, or adulterated with glucose or manufactured outright without any help from the maple bush.

An extract of hickory bark has been used extensively for imparting a maple flavor to such mixed goods as are described above. The process is a patented one, and in justice to those who first devised and used it, it must be said that they did not sell their product as maple, but as mapleine molasses.

The extract is obtained in any convenient manner, such as by making a decoction of the bark or wood, or by percolating water through the bark or wood, or using the sap from the tree. In making sirups about three tablespoonfuls of the decoction are added to a gallon of the sirup at near the boiling temperature. In the language of the patent, "the sirup may be manufactured from any kind of saccharine matter, or mixture of saccharine matters, or the sirups ordinarily found in the markets may be used. The effect of the extract or decoction is to give to the sirup the flavor of the maple, producing a sirup which cannot be distinguished from genuine maple sirup. The high price of maple sirup, as well as its scarcity throughout the country, renders this improved sirup of great value, since a good substitute for maple sirup is thus produced which comes within the reach of all." The extent to which this sophistication has been carried is not known, but the large quantities of maple sirup manufactured by glucose makers and mixers probably is flavored in some such way.

Five hundred samples of sirups and molasses bought in open market in different parts of the country have lately been analyzed by the Department of Agriculture. Among these samples were many labeled "maple," and the per centage of adulterated samples found fully confirms what has been said in respect of this particular kind of adulteration. Of the samples in general it was found that fully 75 per cent. were either mixed with glucose or contained some injurious constituent. Tin was found in a great many cases, derived doubtless from the chloride of tin used in brightening the sugar. Copper was also found in many instances, probably derived from the copper pans in which the boiling took place, or from the steam coils of the evaporating pans.

Whether or not tin and copper are present in sufficient quantities to be injurious to health is a question on which authorities differ. In general it may be said that the minute quantities of these bodies which are taken with one meal of "hot cakes and maple sirup" are entirely harmless. When, however, the molasses becomes an article of daily diet, as it often is with children, even the small quantity mentioned might by a cumulative effect produce most serious results. It would be much safer to forbid the use of molasses containing tin for table or culinary purposes.

As regards glucose it cannot be objected to on account of being obnoxious to health. The fraud in this case is rather of a pecuniary nature. Good glucose is both healthful and nutritious, and when mixed with highly-flavored sugar-cane molasses makes a most excellent sirup. But every farmer, whether he makes molasses or not, should insist on all such articles being sold for just what they are and not for something else. This will be brought about in time, and the Pure Food Bill will hurry matters to the desired consummation.

### Bleaching Molasses.

Much more objectionable than any form of adulteration discussed above is the custom of bleaching. Consumers of sirups and molasses have followed the taste in sugars and demand a sirup nearly or quite colorless. The discharge of the color in molasses by passing it through bone black is not an economic operation. It would necessitate a dilution of the molasses to a thin sirup—its passage through the animal char, and then a reconcentration to the proper consistency. The price at which sirups are sold would exclude this method from being practiced. The most common reagents used for bleaching molasses at the present time are sulphurous acid and chloride of tin. About one ounce of a saturated solution of this last substance to one barrel of sirup is said to produce a good effect. The whole of the bleaching reagent is left in the molasses.

The sulphurous acid is generally supplied by adding to the molasses a metallic sulphite, such, for instance, as the sulphite of soda, and thereafter a sufficient quantity of oil of vitriol (sulphuric acid) to decompose the salt and liberate the sulphurous acid. In this case, as above, all the bleaching materials are left in the sirup. In addition to the substances above named, ozone, peroxide of hydrogen, sulphite of soda, and zinc dust and oxalic acid have been employed.

Bleached molasses, especially when chloride of tin has been employed, leaves an acrid, bitter taste in the mouth, and is wholly unfit for use. Yet such a molasses will command a higher price in the market on account of its light color than could be obtained for a dark, genuine sugar-cane or sorghum product. The thousands of farmers in the country who make molasses in a small way, either from sorghum or maple trees, are directly defrauded both by the practice of adulterating molasses and by all bleaching processes. The consumers are also often directly injured in their health by this objectionable practice. The progress of agriculture will be promoted by every step taken in securing an open market for a pure food, and a restricted one for adulterated or injurious articles of diet. Pure, unbleached molasses is a thing producers ought to make and consumers get.

### Candies and Confections.

Intimately associated with the foregoing, although not of such economic importance, is the subject of pure candies and confections. The general conception of a pure candy is one containing only saccharine matters and harmless coloring, and flavoring ingredients so mixed and adjusted as to be grateful both to sight and taste. Within these limitatations it cannot be said that adulteration has been practiced. Harmful coloring or flavoring compounds, or the admixture of flour, terra alba, kaolin or other substances designed to give weight and volume, must be regarded as adulterations. Flour, starch, and gum are sometimes necessary in the manufacture of certain kinds of confections, and in such cases cannot be regarded as adulterants. The coloring matters used may first of all be divided into organic and mineral. The metallic oxides comprising the latter class of colors should never be used as pigments for confections.

In the examinations of 250 samples of candies by the Department of Agriculture mineral coloring matters were found only in two instances. It is therefore fair to assume that manufacturers rarely use colors of this class; in fact, there is but little temptation for them to do so. Organic colors are both cheaper and more brilliant. The absence of mineral colors, therefore, from candies and confections is due to economy rather than to any regard for the welfare of the consumers. In regard to the organic coloring matters they may be divided into two classes—innocuous and hurtful.

Many vegetable pigments, such as litmus, turmeric, indigo, etc., can be used in moderate quantity without any fear. Colors of insect origin, such as cochineal, may be placed in the same list. Many of the aniline colors when manufactured from arsenic free materials are also admissable, and are probably used to a greater extent than any other class of pigments. Of the 250 samples analyzed by the Department of Agriculture, 218 contained organic coloring matters; 173, glucose in large quantity; 72, starch and gum; 14, grease; two, gelatine, and two, mineral colors.

The following substances, 48 in number, were found in the 250 samples, viz, sucrose, dextrose, maltose, dextrin, starch, soluble starch, gum, gelatin, grease, flour, copper, mineral colors, citric acid, tartaric acid, peppermint, horehound, musk, marsh mallow, raspberry flavor, vanilla, pistachio, almonds, apricot, strawberry, oil of wintergreen, banana flavor, lemon flavor, cinnamon, cloves, cocoanut, cochi-

neal, rosin, corallin, fluorescin, fluorescent colors, ultramarine, turmeric, methyl orange, coal tar colors, carmin, cyanin, lampblack, victoria yellow, magenta, orange red, anilin brown, Bismarck brown. .

The above list is by no means a complete catalog of all the substances which were present in the samples examined, but only such as were incidentally found in the course of the general examination. It would be difficult to fix a number which should include all the substances which have found their way into our candies. Even with a law as general as that now before Congress to prevent the adulteration of foods, it would be difficult to secure anything like uniformity in the composition of confections. Each manufacturer has his own formulæ, and these are kept secret. About all that the law could require in these cases is that the ingredients used should in all cases be innocuous, and that in their compounding no hurtful results should be allowed to occur. These two points being secured, the rest may be left safely to the taste of the consumer

### A Toad Fights a Worm.

"An angle worm is smooth one way and rough another, like a beard of wheat," said the professor, "and it's funny to see a toad handle one. People generally don't know how smart a toad is, and maybe a good many will be inclined to doubt this little story about a toad and an angle worm, but it is true. I was digging up a tree one day, a few years ago, and two or three friends of mine were watching the work. Pretty soon a big toad came hopping gravely out of the weeds near by and made his way toward the spot where I was digging, knowing that there would be a chance to get hold of a worm now and then. I asked my friends if they had ever seen the toad eat, and as they hadn't I told them to watch that one and I would show them something funny.

"I threw him a worm, and the suddenness with which he snapped it up and swallowed it, always head or smooth end first, and the ludicrous solemnity of him in doing it, convulsed my friends with laughter. By and by I turned up the biggest earth worm I ever saw. It was one of those black fellows with a pale ring around their necks that actually look as if they had intelligence. This one was six inches long at least, and you could see the scales on him. I tossed this big worm to the toad. The toad eyed it a moment with a serious air, examining it critically until it had assured itself on the important point of which was its head and which its tail, and then with a flash and a flap of his funny tongue sent the worm head-downward into his stomach. But the worm was several inches longer than the toad, and the latter nipped his jaws together and held the worm, which writhed and twisted itself about, winding several coils around the toad's neck. The toad waited patiently until the worm uncoiled itself for another gyration, and then gulped a half an inch or so more of it down his throat.

"There were a good many half inches in the worm, and the process of gulping it down was not only slow but tiresome to the toad's jaws, so much so, in fact, that the toad could not longer hold the worm tightly in the grip of its jaws, and it began to work its way out of the toad's mouth. The toad would swallow a little of the worm every now and then, but the wriggling thing was getting more of itself outside of the toad than the toad was getting down, and it would have been only a matter of a few minutes before the worm would be all the way out if it hadn't been for the toad's superior wisdom.

"I had boasted of the toad being more than a match for any creeping, crawling or hopping thing, and now I began to fear that this one was about to belie my words, when I saw with delight that he was equal to the occasion. He cocked his head on one side as the worm was wriggling and writhing out of his moth, and seemed to be thinking of what was the best thing to do. Then he suddenly brought his right foot up against his stomach, clutched it, and the worm inside of it, and held the worm firmly there, so that it couldn't work its way out any further. Then the toad made his gulps at his leisure, absorbing a little more of the worm each time, and each time taking up a reef, so to speak, in his stomach with his claw, until he had swallowed the entire worm, when he looked around with a positive smile on his face, winked solemnly two or three times and hopped away among the weeds."—*New York Sun.*

### Games That Birds Play.

What a wonderful thing is the sense of play in the lower animals! How close it sometimes seems to bring their intelligence to ours! I love to watch two dogs playing chase on a wide lawn. Surely no two boys, however bright they might be, could put more spirit into the performance or get more pure fun out of it. Especially interesting to them is the very thing that children so enjoy, that is, the "make believe." Why, a couple of clever spaniels will, if not disturbed, keep this up for an hour at a time, as cleverly as it could be done in a nursery. A lady of my acquaintance once witnessed a very striking illustration of canine humor in this direction.

Looking out upon the street one morning she observed an ugly little terrier that was before the window making every manifestation of great pleasure, as though he perceived a friend approaching. Presently he squatted close to the ground, his eyes snapping and his tail wagging, as though some great joke was about to be perpetrated. A moment later a superb mastiff came slowly down the sidewalk. As he neared the terrier the latter's eyes fairly flashed with merriment.

But, alas for the poor little chap! whatever the joke was, it miserably failed to come off, for the mastiff, taking no more notice of him than if he were merely an extra-sized pebble, stalked solemnly by. No sooner had he passed than the terrier, with his tail between his legs, and looking as crestfallen as such a commonplace creature possibly could, slunk off to hide his humiliations in the seclusion of some back yard.

A still more remarkable instance is related by Mr. Crosse, the distinguished naturalist. His study window commanded a view of a court yard, which was sheltered by high walls and remote from noise or disturbance of any kind. Happening to look out one day he saw a large robin engaged in dragging the apparently dead body of another robin round and round in a circle on the pavement. It looked as though the live robin had fought a duel a *l'outrance* with the other, and having come off victorious was indulging in the cruel triumph of pulling the lifeless body of its vanquished rival over the stones, as Achilles dragged Hector around the walls of Troy.

But just as Mr. Crosse had worked out this reasonable conclusion the live robin suddenly stopped and threw itself upon its back as though stark dead. Its wings were half distended and rigid, and its legs upturned to the sky. Never, to all seeming, had there been a robin more dead than it was. Meanwhile, the other robin went through an exactly converse transformation. It had only been shamming dead, and now woke up into full and vigorous life. Seizing on its feathered playmate, it dragged the latter in its turn all round the same circle, and repeated the process several times over. Finally, both actors flew off together to a neighboring tree, no doubt to rest themselves after their fatiguing game.

Now, were not those robins clever little fellows? Who could blame them for having what the Scotch call a "gude conceit o' themselves," when they were capable of getting up such an elaborate bit of "make believe" as Mr. Crosse was lucky enough to witness?—*Harper's Magazine.*

### The Electric Plant.

India, the land of poisonous serpents, immense jungles, fabulous wealth, fevers, cholera, and mysticism, now claims a share of attention on account of her famous "electric plant." In the United States an "electric plant" consists, generally, of a wooden building covered with sheet iron, a second-hand engine of 5,000 candle-power trying to give a second-class city 50,000 candle-power light; but the Indian novelty alluded to is a real vegetable production, with electric properties equal to a Brush dynamo. To attempt to pull a leaf from this marvelous plant is to invite an electric shock equal to that produced by an induction coil. If a compass be held within six meters of this lightning-charged vegetable the needle acts as strangely as if it had been brought in direct contact with the magnetic pole.

Prof. Engleman, in his "Botanical Rarities," says of the India electric plant: "Its electrical qualities do not astonish the student of nature to as great a degree as does the wonderful variations in its magnetic powers. These are most manifest at 2 o'clock in the afternoon, gradually diminishing until at midnight, or between midnight and 2 o'clock a. m., when it can hardly be noticed. Day after day these wonderful changes take place, the plant gradually losing its magnetism as the darkness becomes more intense, only to have the mystic current shot through its fibers with seeming increased vigor as the sun mounts the tropical skies.

"A thunder storm augments its qualities a hundredfold, and, even though sheltered, it drops its leaves and branches as if shivering with a death stroke. * * * Birds and beasts, as well as the natives, shun the plant as do the Japanese the deadly Upas tree. One would naturally suppose that this wonder of electric vegetation would be found growing in regions abounding in magnetic metals; the contrary is the case."

### Fooling the Devil.

Without the least intention of slurring anyone's religious belief, or of making fun of the time-honored superstitions of any sect, I will here make the remark that at least half of the ritual of the Jewish synagog is based on fancies so silly and puerile as to provoke the amazed wonderment of rational people. Take the "Shophar," or the sounding of the ram's horn trumpet, for an instance. The blowing of that sacred relic on New Year's day is prearranged for the express purpose of fooling the devil. New Year's Day, according to the Jews, is the day of judgment, or the day when the records of the Israelites are read before God's throne. If during the time of the reading the sound of the sacred ram's horn is heard by the All-Wise One, only the good behavior and the terrible sufferings of the Jews are remembered, the shortcomings and the transgressions being blotted out. But Satan has made different arrangements, and whenever he hears the sacred trumpet's notes flies away to the gate of heaven to bar the way and prevent them from reaching the ear of God. To circumvent the arch conspirator and frustrate his designs the rabbis have resorted to the ingenious trick of "Shophar." For a full month prior to the opening of the New Year the trumpet is blown in the synagog every morning after service. Satan, who is thought to be ever on the watch, flies away to the heavenly gate and bars the way, so that no sound of the sacred notes enter. This is repeated day after day, and each day the devil takes his heavenly flight. Finally "Shophar" is suddenly discontinued, no sound of the horn being heard on the day before New Year. This throws the devil off his guard, and he no longer listens for the objectionable notes. On the following day—New Year's Day, the date of the real "Feast of Trumpets"—when Satan is napping, the sacred trump is sounded, and there being no hindrance, pervades all heaven, and the Jews are accordingly forgiven. The custom of blowing the "Shophar" is at least 2,000 years old.—*St. Louis Republic.*

### Decreed.

A storm swept over the land
And a mighty tower went down,
But a nest, the size of a baby's hand,
That a wise little mother-bird had planned,
Held safely its eggs of brown.

—*Mary A. De Vere, in Ladies' Home Journal.*

# CHARACTERISTICS OF INSECTS.

## A Brief Description of the Different Orders—Their Generation, Habits, and Lives.

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[From advance sheets of a work to be published by the Smithsonian Institution.]

II.

THE PERFECT insects make free use of their ample wings, but walk little; and their legs are weak, and not modified in the various ways so noticeable in other orders, while the front pair in some butterflies are impotent. As an order this must be considered the most injurious of the seven. A convenient system of classification for the Lepidoptera is based on the structure of the antennæ. By it we get two great sections: 1st, Butterflies (Rhopalocera); 2d, Moths (Heterocera), which latter may again be divided into Crepuscular and Nocturnal Moths. Butterflies are at once distinguished from moths by their antennæ being straight, stiff, and *knobbed*, and by being day-fliers or diurnal; while moths have the antennæ tapering to a point, and are, for the most part, night-fliers or nocturnal. The crepuscular moths, composed mostly of the Sphinges or Hawk-moths, hover over flowers at eve, and connect the two sections not only in habit, but in the character of the antennæ, which first thicken toward the end, and then suddenly terminate in a point or hook.

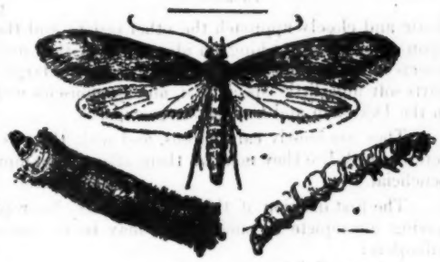

FIG. 17.—A Clothes-moth (*Tinea pellionella*) enlarged. *a*, adult; *b*, larva; *c*, larva in case.

FIG. 18.—A Plant-bug (*Euschistes punctipes*).

Order Hemiptera (*heni*, half; *pteron*, wing), Bugs. The insects of this order are naturally separated into two great sections: 1st, Half-winged Bugs, or Heteroptera (*heteros*, different; *pteron*, wing), having the basal half of the front wings (called *hemelytra*) coriaceous or leathery, while the apical part is membranous. The wings cross flatly over the back when at rest; 2d, Whole-winged Bugs, or Homoptera (*homa*, equal; *pteron*, wing), having all four wings of a uniform membranous nature and folding straight down the back when at rest. The latter, if separated, may be looked upon as a Suborder.

Transformations incomplete; *i. e.*, the larvæ and pupæ have more or less the image of the perfect insect, and differ little from it except in lacking wings.

The genuine or half-winged Bugs (Figs. 18 and 19) are usually flattened in form, when mature; though more rounded in the adolescent stages. They may be divided into Land Bugs (*Aurocorisa*) and Water Bugs (*Hydrocorisa*). The species of the first division very generally possess the power of emitting, when disturbed or alarmed, a nauseous, bed-buggy odor, which comes from a fluid secreted from two pores, situated on the under side of the metathorax. Such well-known insects as the Bed-bug and Chinch-bug belong here. The habits of the species are varied, and while some are beneficial, others are quite injurious to man.

FIG. 19.—A Soldier-bug (*Milyas cinctus*). *b*, beak enlarged.

FIG. 20.—A Tree hopper (*Ceresa bubalus*). *a*, side; *b*, top view.

The Whole-winged Bugs (Figs. 20 and 21), on the contrary, are all plant-feeders, and with the exception of a few, such as the Cochineal and Lac insects, are injurious. The secretion of a white, or bluish, waxy, or farinose substance from the surface of the body is as characteristic of this section as the nauseous odor is of the first. It forms three natural divisions, arranged according to the number of joints to the tarsi—namely, Trimera, with three joints; Dimera, with two joints, and Monomera, with one joint to the tarsi.

Suborder Thysanoptera (*Thysanos*, a fringe; *pteron*, wing). This suborder contains the single family *Thripidæ*, which comprises minute insects commonly known as Thrips, and of which a common species, *Thrips striatus*, is shown in the accompanying figure. (See Fig. 22.) They bear strong relations to both the Pseudoneuroptera and the Hemiptera, and by later writers are generally associated with the latter order. They feed on plants, puncturing and killing the leaves, or on other plant-feeding species of their own class, and are characterized by having narrow wings crossed on the back when at rest, and beautifully fringed, from which latter feature the name of the suborder is derived.

The mouth parts are peculiar in that they are intermediate in form between the sucking beak of Hemiptera and the biting mouth parts of other insects.

Their eggs resemble those of Hemiptera; the larvæ and pupæ are active, and in form resemble the adult, except in the absence of wings. Some species, also, are wingless in the adult stage.

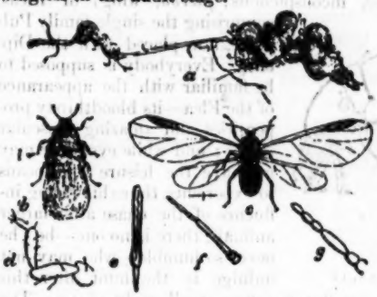

FIG. 21.—A Plant-louse (*Schizoneura lanigera*). *a*, infested root; *b*, larva; *c*, winged insect; *d-g*, parts of perfect insect enlarged.

FIG. 22.—*Thrips striatus*, with wings enlarged at side.

The pupæ are somewhat sluggish and the limbs and wings are inclosed in a thin membrane which is expanded about the feet into bulbous enlargements, giving rise to the name "bladder-footed" (Physopoda) applied to these insects by Burmeister.

Order Diptera (*dis*, twice; *pteron*, wing) or Two-winged Flies. The only order having but two wings, the hind pair replaced by a pair of small, slender filaments clubbed at tip, and called halteres, poisers, or balancers.

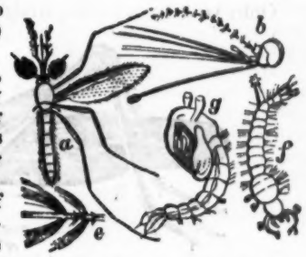

FIG. 23.—A Mosquito (*Culex pipiens*). *a*, adult; *b*, head of same enlarged; *c*, portion of antennæ of same; *f*, larva; *g*, pupa. (After Westwood.)

No order surpasses this in the number of species or in the immense swarms of individuals belonging to the same species which are frequently met with. The wings, which are variously veined, though appearing naked to the unaided eye, are often thickly covered with very minute hairs or hooks. As an order the Diptera are decidedly injurious to man, whether we consider the annoyances to ourselves or our animals of the Mosquito, Buffalo-gnat, Gad-fly, Breeze-fly, Zimb or Stomoxys, or the injury to our crops of the Hessian-fly, Wheat-midge, Cabbage-maggot, Onion-maggot, etc. There are, in fact, but two families, Syrphidæ and Tachinidæ, which can be looked upon as beneficial to the cultivator, though many act the part of scavengers. No insects, not even the Lepidoptera, furnish such a variety of curious larval characters, and none, perhaps, offer a wider or more interesting field of investigation to the biologist. It is difficult to give any very satisfactory arrangement of these Two-wing flies, though they easily fall into two rather artificial sections. These are: 1st, Nemocera, or those with long antennæ, having more than six joints, and palpi having four or five joints. The pupa is naked, as in the Lepidoptera, with the limbs exposed. This kind of pupa is called *obtected*. 2d, Brachocera, or those with short antennæ, not having more than three distinct joints, and palpi with one or two joints. The pupa is mostly *coaretate*; *i. e.*, is formed within, and more or less completely connected with, the hardened and shrunken skin of the larva.

FIG. 24.—A Hawk-fly (*Eraz bastardi*). *a*, perfect insect; *b*, pupa; larva shown at side.

The most anomalous of the Diptera are the Forest-flies and Sheep-ticks (*Hippoboscidæ*). They have a horny and flatened body, and resemble lice in their parasitic habits, living beneath the hair of bats and birds. Their mode of development has always attracted the attention of entomologists. The larvæ are hatched in the abdomen of the female, which is capable of distension. There it remains, and after assuming the pupa state is deposited in the form of a short, white, egg-like object, without trace of articulation, and nearly as large as the abdomen of the female fly. Closely allied to these are the Bat-ticks (*Nycteribidæ*), which possess neither wings nor balancers, and remind one strongly of spiders.

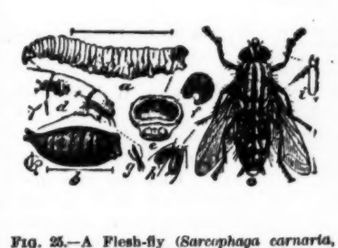

FIG. 25.—A Flesh-fly (*Sarcophaga carnaria*, var. *saracenæ*). *a*, larva; *b*, puparium; *c*, adult insect with enlarged parts.

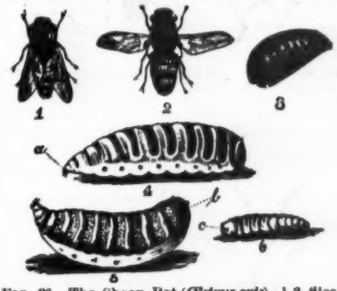

FIG. 26.—The Sheep Bot (*Œstrus ovis*). 1, 2, flies: 3, puparium; 4, 5, and 6, larvæ or bots.

In this order we may also place certain wingless lice (such as *Braula cœca*,

Nitzsch), which infests the Honey-bee in Europe, northern Africa, and western Asia, but which has not yet been detected in this country.

Suborder Aphaniptera (*aphanus*, inconspicuous; *pteron*, wing) or Fleas, comprising the single family Pulicidæ, now placed with the Diptera. Everybody is supposed to be familiar with the appearance of the Flea—its bloodthirsty propensities and amazing muscular power; and while everyone may not have the leisure and means to experience the exhilerating influence of the chase after larger animals, there is no one—be he never so humble—who may not indulge in the hunt after this smaller game! In place of wings the flea has four small, scaly plates. The minute eggs—about a dozen to each female—are laid in obscure places, such as the cracks of a floor, the hair of rugs, etc., and the larva is worm-like and feeds upon whatever animal matter—as grease and blood—or decaying vegetable matter it can find.

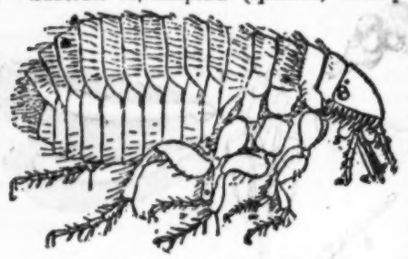

Fig 27.—A Flea (*Pulex*). (From Packard.)

Order Orthoptera (*orthos*, straight; *pteron*, wing), or Straight-winged Insects.

Fig. 28.—A Locust (*Acrideum americanum*).

Characterized by having the front wings (called *tegmina*) straight and usually narrow, pergameneous or parchment-like, thickly veined, and overlapping at tips when closed; the hind wings large and folding longitudinally like a fan. Transformations incomplete.

The insects of this order have a lengthened body and very robust jaws, with a correspondingly large head. The legs are strong, and fashioned either for grasping, running, climbing, jumping, or burrowing. As in the other orders, where the transformations are incomplete, the young differ little from the parent, except in the want of wings; and in many instances even this difference does not exist, as there are numerous species which never acquire wings. There are no aquatic Orthoptera. Some are omnivorous, others carnivorous, but most of them herbivorous. They form four distinct sections. 1st,

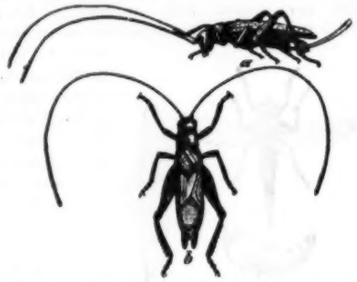

Fig. 29.—A Tree-cricket (*Ocharis saltator*). *a*, female: *b*, male.

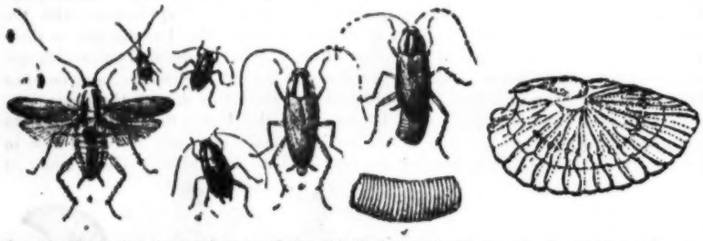

Fig. 30.—The Croton Bug or German Cockroach (*Phyllodromia germanica*). *a*, first stage; *b*, second stage; *c*, third stage; *d*, fourth stage; *e*, adult; *f*, adult female with egg-case; *g*, egg-case enlarged; *h*, adult with wings spread—all natural size except *g*.



Fig. 31.—Hind wing of Earwig. (From Comstock.)

Cursoria, Cockroaches; 2d, Raptatoria, Mantes; 3d, Ambulatoria, Walking-sticks; 4th, Saltatoria, Crickets, Grasshoppers, and Locusts.

Fig. 32.—An Earwig. (From Packard.)

Suborder Dermaptera* (*derma*, skin; *pteron*, wing), or "Earwigs, consisting of the single family Forficulidæ, which may be placed with the Orthoptera. They are rare insects with us, but very common in Europe, where there prevails a superstition that they get into the ear and cause all sorts of trouble. The front wings are small and leathery; the hind ones have the form of a quadrant, and look like a fan when opened; and the characteristic feature is a pair of forceps-like appendages at the end of the body, best developed in the males. They are nocturnal in habit, hiding during the day in any available recess. The female lays her eggs in the ground, and, singularly enough, broods over them and over her young, the latter crowding under like chicks under a hen.

*Euplexoptera of some authors from *eu*, well; *plaro*, folded, referring to the folded wings.

Order Neuroptera (*neuron*, nerve; *pteron*, wing), or Nerve-winged insects. Characterized by having the wings reticulate with numerous veins so as to look like net-work. The order forms two natural divisions, the first including all those which undergo a complete, and the second, called Pseudoneuroptera (Dictyotoptera, Burmeister), those which undergo an incomplete, metamorphosis. * * * The insects of this order are, as a whole, more lowly organized, and more generally aquatic, than either of the others. A natural arrangement of them is difficult on account of their degredational character. They present forms which are synthetic and closely approach the other orders, and the evolutionist naturally looks upon them as furnishing an idea of what the archetypal forms of our present insects may have been. They are, as a rule, large and sluggish, with the body parts soft and little specialized, and the muscles weak. Their remains are found in the Devonian and Carboniferous deposits.

Fig. 33.—A Dragon-fly (*Libellula trimaculata*). (From Packard.)

They are mostly carnivorous, and with the exception of the White-ants and certain Book-lice they none of them affect man injuriously, while some are quite beneficial.

The first division of this order, or the Neuroptera proper, characterized by having incomplete metamorphoses, may be considered under the three following suborders:

Suborder Trichoptera (*thrix*, hair; *pteron*, wing), or Caddis-flies, containing the single family Phryganeidæ, and placed with the Neuroptera, though bearing great affinities with the Lepidoptera. Every good disciple of Walton and lover of the "gentle art" knows the value of the Caddis-fly, or Water-moth, as bait. These flies very much resemble certain small moths, the scales on the wings of the latter being replaced in the former with simple hairs. The larvæ live in the water and inhabit silken cases, which are usually cylindrical and covered with various substances, according to the species, or the material most conveniently obtained by the individual.

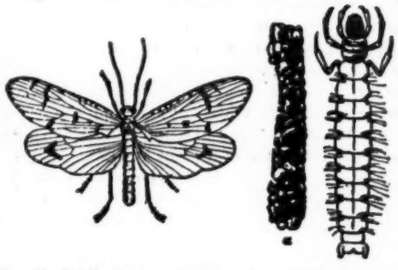

Fig. 34.—Caddis-fly, larva and its case. (From Packard.)

Suborder Mecoptera (*mekos*, length: *pteron*, wing). This suborder includes a peculiar group of insects, the most striking characteristics of which are the mouth parts, which are prolonged into a rostrum or beak. The wings are long and narrow, and of nearly equal size. The abdomen of the male is constricted near its posterior end and terminates in long clasping organs from which these insects obtain the common name of Scorpion-flies.

Fig. 35.—Panorpa or Scorpion-fly. (From Packard.)

The larvæ of one genus (*panorpa*) are remarkable for their great resemblance to the larvæ of Lepidoptera. They have, however, eight pairs of abdominal legs. The habits of these insects are not well known, but they are supposed to be generally predaceous.

Suborder Neuroptera. This group as restricted by modern authors is a small one, including the largest species, as in the Hellgrammite, the Lace-wing Flies, the Ant-lions, and the Mantispas representing the families, Sialidæ and Hemerobiidæ, with their subfamilies. The first includes the so-called Hellgrammite Fly, (*Corydalus cornutus*), one of our largest and most striking insects, the larvæ of which is known as Dobsons by anglers, and is aquatic and carnivorous in habit. The Hemerobiidæ is a large family, comprising, as a rule, delicate insects with rather ample gauzy wings. The larvæ are predaceous. The common Lace-wing flies are among our most beneficial insects destroying plant-lice and other soft-bodied species. To the same family belongs the Ant-lion (*Myrmeleon*), the larvæ of which have the curious habit of constructing a funnel-shaped burrow in the sand, in the bottom of which they conceal themselves and wait for any soft-bodied insects which may fall into the trap. This family also includes the peculiar Mantis-like insects belonging to the genus *Mantispa*. As in the true Mantis, the prothorax of these

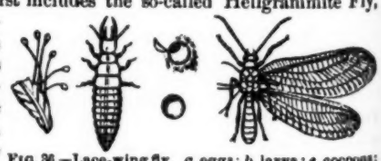

Fig. 36.—Lace-wing fly. *a*, eggs; *b*, larva; *c*, cocoons; *d*, fly with left wing removed.

Fig. 37.—An Ant-lion, *Myrmeleon*. From Packard.

insects is greatly elongated and the first pair of legs are fitted for grasping. The larvæ are parasitic in the egg-sacs of certain large spiders (genera *Licosa*, *Dolomedes*, etc.), and undergo a remarkable change in form after the first molt. In the first stage the larvæ are very agile, with slender bodies and long legs. After molting the body becomes much swollen and the legs are much shortened, as are also the antennæ, the head becoming small and the general appearance reminding one of the larva of a bee.

FIG. 38.—Myrmeleon larva.

The second section of the Neuroptera, characterized by complete metamorphosis, comprises the following suborders:

Suborder Platyptera (*platus*, flat; *pteron*, wing). Under this head are grouped the White-ants (*Termitidæ*), the Bird-lice (*Mallophaga*), and the Book-mites (*Psocidæ*). The suborder receives its name from the fact that in the case of the winged forms the wings, when at rest, are usually laid flat upon the back of the insect. The Mallophaga, or Bird-lice, are degraded wingless insects, and are parasitic chiefly on birds, but also on mammals. In shape of body and character of the mouth parts they are most nearly allied to the Psocidæ. The latter family includes both winged and wingless forms, the Book-mites belonging to the latter category. The winged forms may be illustrated by the common species, *Psocus venosus* (see Fig. 40). The legs and antennæ are long and slender, and the wings are folded roof-like over the body when the insect is at rest. They feed on lichens and dry vegetation.

FIG. 39.—*Mantispa* with side view beneath. (From Packard.)

FIG. 40.—*Psocus venosus*. (From Comstock.)

The Termitidæ are represented in this country by the White-ant (*Termes flavipes*), which is frequently so destructive to wood-work, books, etc. The term White-ant applied to these insects is unfortunate, as in structure they are widely separated from ants and resemble them only in general appearance and also in their social habits. Like the ants they live in colonies, and have a number of distinct forms, as winged and wingless, males and females, and workers and soldiers.

FIG. 41.—A Stone-fly (*Pteronarcys regalis*). (From Comstock.)

Suborder Plecoptera (*plextos*, plaited; *pteron*, wing). Closely allied to the latter suborder is the suborder Plecoptera, which includes the single family Perlidæ or Stone-flies. The larvæ and pupæ of these insects are aquatic, being often found under stones in water, whence the name. The adults are long flattened insects, with long antennæ. The wings are ample and are somewhat folded or plaited, from which character the suborder takes its name.

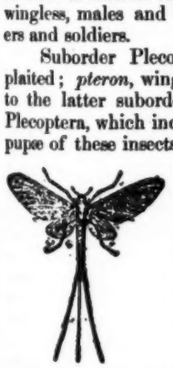

FIG. 42.—A May-fly (*Protamanthus marginatus*). (From Packard.)

Suborder Odonata (*odous*, tooth). This includes the Dragon-flies or Libellulidæ, the most common and the best known of the Neuroptera. The larva and the active pupa or nymph are aquatic and are predaceous, as is also the adult. A common species is represented at Fig. 33.

The Suborder Ephemeroptera (*ephemeron*, a day-fly; *pteron*, wing) comprises the May-flies, or Ephemeridæ (see Fig. 42). These insects are very fragile, and are often attracted in enormous numbers to electric lights. They have large front wings, while the hind wings are small, rudimentary, or wanting. They are furnished with two or three very long, jointed, thread-like caudal appendages. The larval and nymphal stages are passed in the water and aquatic vegetation furnishes the food, although some species may be predaceous. The adults have very rudimentary mouths and eat nothing; their term of life is also very limited, not exceeding 2–4 days.

FIG. 43.—*Lepisma 4-setata*. (After Packard.)

Suborder Thysanura (*thysanos*, tassel; *oura*, tail). This suborder comprises minute, degraded insects commonly known as Spring-tails, Bristle-tails, Fish-moths, Snow-fleas, etc. They occur in damp situations, and also infest books, wall-paper, etc., eating the starch paste in the book-bindings, or beneath the wall-paper. They comprise very primitive forms, and are interesting because they are supposed to represent the original stock from which the higher orders of insects have sprung. They are wingless, usually with simple eyes, and clothed with scales, and undergo no metamorphosis. Some of them, as the Fish-moth (*Lepisma* sp.), run very rapidly, and are furnished at the end of the body with a number of long bristles. In other forms these anal bristles or stylets are united at the base and bent under the body, and become a powerful jumping organ, giving them the very appropriate name of Spring-tails.

[*To be continued.*]

## The Great American Desert.

While the Sahara remains to-day as it was beyond the records of time, the American Desert is populous with an enterprising race; it is dotted with cities of marvelously rapid growth; it is gridironed with railways; its dry and arid surface has been watered into a richly productive soil, until we see here a garden-spot of the Continent rather than its Sahara. Not only have the savage tribes been conquered and exterminated, but Nature herself has been subdued and overcome. Her small supply of timber has been remedied by the tearing of coal from her bosom. The water she denied to the plain she has been compelled to surrender from her mountains for equitable distribution by man's artificial means to the plains below. The energetic American settler on the Great Desert was not content like the lazy and dreamy Egyptian to watch a Nilometer a thousand years old to know when to look for the rise of his rivers; but, draining them at their sources in the mountains, he stores their floods and doles their waters out through innumerable sluices and canals and ditches as the broad fields demand life-giving irrigation. And he goes on thus, year after year, building more drains and reclaiming more acres of his desert. The once guarded and fortified camping-spots of a generation ago he has turned into free cities which fear no foe and engage only in friendly rivalry and contention with one another.

All this has been accomplished within a little more than a generation. In less than a generation cities in that region have grown to greater population than cities of the Eastern States of the Nation which are 200 years old; and in some instances cities of the Plains incorporated less than a decade ago have a larger population than towns founded by the Puritans and by Penn a century since. It would be incredible, if the official figures did not establish the fact, that Denver, Colo., for instance, incorporated in 1861, has a larger population than Albany, N.Y., founded in 1686, and nearly twice that of Trenton, N. J., incorporated in 1792, though founded 40 years before. The town of Beatrice, Neb., is now just 11 years old; its population is 13,836; while Dover, N. H., was settled in 1623 and has now a population of only 12,790.

As a still more extraordinary development, one may cite the city of Wichita, Kan., right in the heart of the desert plains, which, incorporated as recently as 1886, six years ago, has a population of 23,853, an actual valuation of $27,170,067 of property, a costly water system, 20 miles of electric street railways, 19 banking institutions, is the converging point of no less than five steam railways, and is lighted by electricity. Colorado itself, in the heart of this great American desert, was admitted as a Territory only in 1861, as a State as late as 1876, and last year its property valuation was assessed for State tax purposes at $220,544,064. Such extraordinary illustrations of rapid development of a country are unparalleled in history, even in that of our own Eastern States and cities.

The extraordinary development of this peculiar and interesting region is not yet written history. Indeed, the region is not old enough to be thought entitled to the dignity of historical record. The time to write it has not ripened; the material has not been collected; in fact, it is only beginning to be manufactured. I can only write solely in the hope that I may incite others to steps to preserve the facts of this development. I can only hope in this article to point out this rapid growth of a section of our country, partly as a stimulus to those who are making its prosperity, partly to excite thought as to the possibilities of the early future, to stimulate renewed energy in the same direction of intelligent development, but chiefly to urge the collection and preservation of this history now making. The facts which I throw together without much method, though with some care, I have secured through newspaper clippings from current publications furnished me from time to time, and from the officials of a number of the cities of the Plains who have sympathized with my purpose in preparing this article. I am actuated to persevere in this by a former experience of a similar character. In *Harper's Magazine* in 1866 I pointed out the grave dangers to our fishing interests, and thus led to an agitation which has resulted in establishing Fish Commissions in nearly every State. In this Magazine, in May, 1881, I pointed out the dangers to our oyster supply, and since then the oyster has been liberally legislated on, to the preservation of his natural beds. If, in like manner, I can stir up the authorities of even one State in the "dry, arid desert" region of the Great West to a preservation of its early historical records, I shall have accomplished a good part of my purpose.—*William F. G. Shanks in Lippincott's.*

## Origin of Our Weeds.

Most of our weeds, like much of our vermin, have come to us from beyond the sea. Just how they emigrate in every case will never be known; some came as legitimate freight, but many were "stowaways." Some entered from border lands upon the wings of the wind, on river bosoms, in the stomachs of migrating birds, clinging to hairs of passing animals, and a hundred other ways besides by man himself, says *The Popular Science Monthly*. Many of the native weeds are shy and harmless in comparison with the persistent and pugnacious ones that have like vagabonds emigrated to our shores. Why should it be that plants of another country not only find their way here, but after arriving assert themselves with a vigor far surpassing our native herbs? Dr. Gray, in writing upon this point, says, "As the district here in which the weeds of the Old World prevail was naturally forest-clad, there were few of its native herbs which, if they could bear the exposure at all, were capable of competition in the cleared land with emigrants from the Old World." The European weeds had through long ages adapted themselves to the change from forest to cleared land, and were therefore prepared to flourish here in the rich forest soil that was suddenly exposed to the sun and subjected to other new conditions by the felling of the trees.

# THE MALODOROUS SKUNK.

## Hardly a Rural Blessing in Disguise, but it is, Nevertheless, a Useful Ally of the Farmer.

A BRIGHT country cousin was teasing her city relative one day over sundry and several city discomforts which she was happily free from, when the badgered urban dweller settled this argument by suddenly declaring that while it might be true that certain sights, sounds, and smells were her unhappy fate in town, yet she escaped the dreadful, the unspeakable anguish of the suburban air when polluted by an angry or a scared skunk. She escaped a country horror, indeed, and one that must be experienced really by the human nostrils to be understood in all of its pungent, acrid, drastic misery.

Hunted and execrated by the human species as few other animals have ever been by man, yet the skunk is still with us all over the length and breadth of this broad land of ours, way down into South America and far up into the circumpolar regions—still with us everywhere in the country where convenient barns and outbuildings under which it can hide and dwell are found; peaceable and quiet enough in itself, but being constantly mistaken by ignorant men and stupid dogs for something else, is so approached and threatened by them that in self defense it opens that peculiar armory of defense which it carries, *semper paratus*, and the result follows of which the whole neighborhood complains for days after.

Seriously speaking, our skunk (*Mephitis mephitica*) is a really useful animal for the farm, garden, and orchard. It seldom ever disturbs the hen roost, and destroys nothing but obnoxious vermin and insects, for it feeds upon moles, field mice, coleopterous insects, and their larvæ, and many reptiles. It has a great tooth for eggs, and although it cannot climb trees, yet it finds much oological food in the ground and grass-made nests of those birds which incubate on the earth. As it has a peculiar indifference to man and lopes out early in the evenings around the house or barn in full sight of the farmer as he sits on the porch or in the doorway, that person is not slow to charge up to it all the wreck and ruin which weasels, foxes, and other enemies inflict upon his poultry. Thereupon, he loads his gun and baits his traps, full of zeal and determination to destroy every skunk that he can; but in spite of this universal hostility to the skunk, it is abundant everywhere in those regions where it is most hunted.

As our skunk has a body not much or any larger than a well-conditioned house cat, with a striped black and white back, and black on all parts inferior, it is commonly mistaken for a cat; thereupon, in spite of its plantigrade walk, slow and deliberate, and its immense bushy tail curled over its back or head straight up like the ostrich plume on a bandmaster's hat—in spite of these marked differences from the *tout en semble* of pussy, yet every little while some man or woman will insist on attempting to pick it up or caress it; for "it was such a pretty little creature, don't you know," they will say to you in explanation of the cause of that fearful explosion which they thus thoughtlessly created, for those perineal glands, extraordinarily developed, have asserted their use and power with the usual triumph on the part of their owner.

The skunk belongs to the great family of Mustelidæ; *i. e.*, the weasels, the minks, the martens, the wolverine, badgers, and others. It is placed in the sub-family of Mephitinæ, and this sub-family is confined to America, its nearest old-world representatives being the African *Zorillinæ* and the Javan *Mydans*. It is a small group, only two or three genera, and not more than four or five species, three of which are known to inhabit North America above Mexico. There is a Mexican species of skunk proper, entirely distinct from ours.

The closest relation of the skunk is the badger, and Cones says that in fact one of the skunks, *Conepatus mapurito*, is almost as much of a badger as it is a skunk to all outward appearance.

Skunks, none of them climb trees; they are earth travelers, live in burrows, hollow stumps, logs, or rocky clefts, or get under barns or outbuildings wherever they can, in farming communities. They seldom stir about in daytime, though I have had one cross my porch and almost hop over my feet as I sat there one warm afternoon in July, 1884. It prefers to feed and amble about between twilight in the evening and early dawn. It peers curiously up into your face with its small, black eyes, and ambles off deliberately and slowly, giving the thought of your presence no further concern, if you let it alone.

The tail of the skunk is remarkably bushy, with long, harsh hairs falling loosely all around where the tail is elevated, and at the tip are entirely white; but there is a great diversity in the extent and details of the white pattern of the skunk's body, but it is generally found to be a sharp, narrow frontal stripe, to a broad unchal area, from which proceeds obliquely backward a pair of stripes toward or entirely to the root of the tail, continued or not upon this member, but always white at the tip. The coat of the body fur, while not so long and coarse as that of the tail, is well developed, however, and it makes a fur which has been eargerly sought for by the dealers, who dress it up cunningly and give it out as "sable" and "marten;" and, in fact, it is made into thousands of capes and muffs, richly lined and skilfully dyed, which are worn all over the world by their owners who have not the faintest idea that they are wearing the pelt of the much despised and berated skunk.

The demand of the furrier's for skunk skins has been so steady and active that this animal has been trapped without mercy for years and years; yet to-day, in spite of the universal attack made on it by our species, it is safe to say that its numbers never were greater in our rural districts.

Then, too, the sovereign qualities of "skunk oil" for rheumatism, for asthma, for croup, for bronchial troubles have long been the theme of rural housewives and their patients, and that terrible fluid which has given that sad name to the skunk, it, too, has been put to medical use in the treatment of asthma, but that remedy has usually been found worse than the disease, when persisted in.

While the skunk was well known to the North American Indians when our ancestors landed here and made its acquaintance for the first time, yet it was not then near so abundant as it is to-day; and the savages made little account of it, except to esteem its flesh as particularly good and dainty eating, being white and sweet. The French, when they first came into this country under the lead of Cartier and Champlain, lost no time in giving the skunks striking names, such as "Betes Puantes," "Enfans de Diable," and several other equally expressive titles equivalent to calling them stinking or stifling weasels.

The only fairly good representative of our skunk found outside of the new world is that one known as the "Teledu" of Java (*Mydans meliceps*). This creature, which also belongs to the Mustelidæ, has the same peculiarity and power

of emitting in self-defense that pungent liquid which so distinguishes our beast, but presents a singular contrast in its geographical distribution, for it is confined exclusively to the high lands and mountain summits of Java, never being found less than 7,000 feet above the sea level; but in all other respects resembles in habits of living and acting our skunk.

If the farmer wants a safe ally in the labor of destroying mice, moles, beetles, grasshoppers, and serpents, he will never find fault with the skunk; he will on due investigation find that animal guiltless of having harmed the hen roost; that some other nocturnal prowler has really been to blame. But a foolish dog or a thoughtless man or child may at any hour in the evening or early morning create an infinite amount of nasal misery around and in the house for the rest of that day, or week even, by attempting to handle or destroy one of these easy-going little animals; better let them alone. They do no harm, whatever, and they do instead a vast amount of real good in so far as the agriculturist is concerned.

It is hard to intimidate a skunk, but when he is frightened he generally gets even with his terrifier and turns the tables quickly.

Skunks remain active during the greater part of the year in this region, and hibernate only in the severest portions of the Winter. A warm day in January will bring them out at evening, no matter how much snow there may be on the ground.

### A Useful Animal.

A useful South American animal is the kinkajou, which, as the dictionary will tell you, is a procyoniform quadruped, with a protrusile tongue and a prehensile tail. Under ordinary circumstances, if you were to meet a kinkajou in the street, you would look for an Italian with a hand-organ, though I should be inclined to look for a policeman, because I know how unpleasant the animal can be, particularly in the fruit season, for the kinkajou loves fruit, and eats all he can find. The chief reason for asserting that the kinkajou is useful is that in addition to his fondness for fruit, he has a great liking for insects for lunch, and when tamed is a valuable assistance in Southern homes, where fly-paper is unknown, and where a mosquito net is more expensive than a silk dress. It has always seemed strange to me that some enterprising person has not imported a few thousand of these insect-eaters from South America for use in North American Summer hotels. They could not cost more than $100 a dozen, and many people would rather pay that amount than spend the night with a swarm of mosquitoes, and unprovided with means of defense against them.—*Harper's Young People.*

# ANNIE SHAUGHNESSY.

## A Maiden Wooed and Won in the New England Hills.

BY G. E. M.

IT WAS almost the hour of twilight, late in the month of May. A little group at the door of the single, isolated cottage on Fryer's lands comprised three persons. The central figure of the group would have attracted attention from any casual observer. She was a young girl, probably past her 18th year. Very plainly though neatly dressed, with the sure signs of poverty about her surroundings, the singular loveliness and sweetness of her face were, nevertheless, a rich endowment of nature. Perhaps one might say that the real charm of Annie Shaughnessy's beauty was the spirit of purity which shone radiantly through it. The beauty of many women is a kind of exquisite veneer. In trying to look beyond it, one finds only a desolate insensibility. But beauty illuminated from within is a fathomless power. And its influence is invariably exalting. To the toiling, hard-headed men and women all over the Berkshire country Annie Shaughnessy was simply a very pretty girl. But she was not a popular girl. How could a girl be popular—as they would have argued—who appeared to disdain the advances of her betters, who appeared even contented with her miserable lot? More than one good-looking young man, with abundant means to support a wife comfortably, had asked her to marry him. Yet, with a stubborn pride which none could comprehend, she had refused every advantageous offer. It was noised abroad, indeed, that John Fryer himself was eager to marry her, and could she hope for a higher blessing than John Fryer's protection? Had not she and hers subsisted measurably on the bounty of the Fryers for years? Old John Fryer, now seven years dead, had permitted the Shaughnessys to occupy the small, gray cottage on his estate rent free almost since the day Patrick Shaughnessy was taken into his service.

Young John Fryer had been equally gentle hearted to the widow and her children, and now it was doubtful if the foolish girl would accept him as a husband. All this, of course, was inexplicable to the Berkshire people, who looked upon the Shaughnessys somewhat with the contempt which is shown to pauperism. Still, no one could deny that the Shaughnessy women—the lone women of Fryer's, as some rustic wit had once described them, and the description became apt to the tongue—had worked hard to make themselves independent, and, as I have intimated, Annie Shaughnessy might have presided over many a worthy household.

The other two in the group were a little child, who knelt close to Annie, and a tall, brawny, sunburned fellow who stood at her right. The child was Annie's younger sister May, a fragile bit of a being, with blue eyes full of half-frightened wonder. The man was John Fryer, who, tough-grained though he may have been, impressed everybody that came in contact with him as a strong and manly character. In fact, there was no lack of manliness in John. He was a chip of the original block unquestionably, for all the firm and fine traits of his father were reproduced in him. Country bred, unambitious, satisfied to follow his father's footsteps as the head—and a laboring head, too—of a large farming estate, he moved about happily in his small sphere and entertained no desire to reach beyond it. Little care had been wasted upon his education. Old Fryer put small faith in education. Money made honestly, an estate managed skilfully and conservatively, debts paid promptly, and the essential duties of life observed steadfastly—that was a creed which old Fryer thought sufficient for himself and for his lad. Therefore, when the lad came to a strapping manhood, he saw things with his father's eyes, and he saw little outside of them. Here was a peculiar illustration of heredity in character and teaching.

The Shaughnessys had been allowed to house themselves on the estate for at least a dozen years before the elder Fryer died. Patrick Shaughnessy had won the favor of the stern and rich farmer by means which were entirely creditable to himself, but which did not prevent him from running quickly to seed soon after the death of the farmer. He became in short order a drunkard and a vagabond, dreaded by his wife and children. When he passed away—just as Annie had reached her 15th birthday—no one regretted his disappearance. Then it was that young Fryer stepped into the breach and insisted that Mrs. Shaughnessy should continue to hold the little cottage as her home. He would have gone further and helped the poor woman with money. But Mrs. Shaughnessy, ignorant though she was, insisted upon earning her own scant means. She managed to earn enough in various ways for the bare living of herself and the two girls, and, as time passed, Annie grew to be a useful helpmate to her. But there came a day when Mrs. Shaughnessy fell ill and had to take to her bed. For six months now she had been a sickly, bed-ridden creature, and all the burdens of the family had fallen upon Annie. The latter found her tasks vexatious enough. But her willing heart was undanted by circumstances which would have crushed most girls of her age. Her duty was clear before her, and she obeyed it with a humble heroism which made John Fryer groan in spirit and added fire to his love. For he loved Annie with all the frank honesty of his nature. He would have been unutterably happy if she would marry him. He had begged her to marry him more than once. Yet, under his rough coat of manner, there was a delicacy which forbade him to press his suit too ardently. Why she hesitated to accept his love and his home he could not explain. The subtlest men fail often in their attempts to penetrate a woman's heart, and John Fryer was as devoid of subtlety as any oak on his lands. He was young, rich, and lonely, and he loved Annie. That was the sum of his reasoning, and Annie, perhaps, was a little decided in her mind as he when she faltered at the thought of giving herself to John Fryer. If she had known anything of the world, of its possibilities, her treatment of John might not have seemed quite illogical. But the world was a mystery to her. The wretchedness of her present condition was apparent to the meanest farm hand in the country. Why, then, her hesitation?

There are human natures that act from noble yet indefinite motives, as animals act from instinct. Annie Shaughnessy, despite her lowly birth, her almost squalid environment, the two sharp realities of her life, stood in her secret soul far above all that she knew or saw. In the first place, she loved books, and every book which came to hand found in her a passionate reader. John gratified this feeling of hers by bringing to her at odd intervals such volumes as he chanced upon at the Pittsfield news shops. John was not a judge of books; nor was Annie, for that matter. Yet, step by step, the young girl succeeded in acquiring the rudiments of education, and, better still, in acquiring a taste for good literature. Thus, imperceptibly, she was preparing herself for a life which had nothing in common with the harsh, unideal life with which she was so closely allied. Step by step, she began to aspire toward the seemingly unattainable. Her spiritual development was hardly clear to her own comprehension. The things she looked up to, looked forward to, were still dim uncertainties. But the seed of a broader existence had been planted in her, and, as the seed had taken grasp of a nature which was essentially one of rare resources, it is not astonishing that, in a vague way, she repelled what might in different circumstances have attracted her. Even her sweet, natural speech, strangely free from provincialisms, showed the quality of her self-teaching and the quality of her mind.

This evening John Fryer had evidently been broaching to her again the subject which was nearest his heart. His face wore a perplexed, troubled look, and there was an air of restraint and discouragement in his bearing. Still John was not easily danted. He felt certain that he would gain his point after patient waiting. He ascribed to Annie thoughts which had never entered the poor girl's head. He liked to believe that a foolish pride stood in the way of his happiness. And so he persisted gallantly in his wooing.

"Well, Annie," he was saying, "I don't say as I understand you. But look at things honest-like. Here you're working yourself to a shadow. Why, girl, there's not a bit of the old color left in your face. Up all day with your chores and what not, and up all night with your books; you're killing yourself—killing yourself." He spoke with vigorous emphasis and not without anger. "Then there's the child. She's only half fed. And your mother."

"Poor mother," murmured the girl, a slight flush coming into her pale cheeks.

"Yes the poor mother. She needs care, and what does she get?"

"I give her the best care I can, John."

"Well, she needs better. Now, Annie, if you were married to me, see what I could do for you. In the first place, I swear I'd make you the jolliest girl in the County. Everything that's mine would be yours. And, look you, Annie, I'm snugly fixed—as well fixed as any farmer for miles around. Then, in the second place, I'd soon have the little one as strong as a calf, and, of course, we'd send her to school. Thirdly, the mother'd be looked after. I'd have the smartest doctors for her, I promise you. I guess she'd be comfortable up at the old house."

The girl gazed at him wistfully. Then she said in a voice which trembled, while tears came into her eyes:

"You must think me ungrateful, wicked, John. You would give me everything, and what could I give you in return? Only myself, and a burden of troubles. Why don't I accept what you offer? Why don't I accept with thankfulness to God? Why—why? Heaven knows I don't understand myself. Yet somehow—I can't explain it to you—I feel that if I should accept I should do you a cruel wrong, a wrong which in after years might bring its punishment. Oh, what am I saying! My heart does not tell me my duty yet, John."

She spoke wildly, and the man knew instinctively that some secret strife was waging in her which was beyond his defining.

"Well," he replied gently, "I mustn't hurry you, Annie. One of these days, perhaps, your mind will be clearer. But it maddens me to watch you living your mean life here, when I"—— He gulped down something like a sob, but continued bravely: "No matter. You're out of sorts to-day. You're overworked my girl, as I've told you. Think over what I've said, and try to make me a happy man when you can."

"I will, John! I will!" she cried plaintively.

"There, I'll leave you now. I'll"——

At this instant a sharp, quick clattering of hoofs was heard just around the bend of the road which ran westward through a dense wood toward the villages of

Stockbridge and Lenox and wound down close to the Shaughnessy cottage. As yet there was nothing visible save the dark, quiet trees which loomed in the distance and the wide stretches of waving land which lay bathed in the light of the western sun. It was not unusual for horsemen to pass through the neighborhood, and ordinarily neither John Fryer nor Annie would have been surprised at such an apparition; but now they gazed at one another with a startled glance, and the girl sprang eagerly to her feet. The ears of John Fryer, at least, were too well trained not to recognize the approaching and deepening sound. He paused only for a second, then shouted:

"By George, it's a runaway!"

With a bound he rushed away, straight up the declivity of the road. At the same moment a horse, carrying a rider who was vainly endeavoring to check the animal's wild and frightful speed, rounded the curve from the wood. He was skilfully guided, luckily, else he would have dashed into the thick of forest and underbrush. The rider pulled in vain at the reins. He was a clever and courageous rider, clearly, but the horse, a powerful and high-strung creature, was too much for him. Down the steep road came the horse, his mouth dripping foam, and right in his path stood John, stalwart, fearless, his teeth shut hard together. To Annie, who had pushed her sister within doors, the suspense was agonizing. She did not utter a word. She was not one of those women who shriek or faint at the sight of danger. But with clasped hands, with dilated eyes, she watched the rider and she watched John. She understood the peril in which the latter had placed himself. A thrill of passionate feeling shook her as she thought of him now. Never before had he seemed so dear to her. Then, as though in a daze, she saw him spring at the horse's bridle just as the animal stumbled and fell, carrying John headlong to the ground, while the rider, shaken violently from his seat, was hurled several feet distant.

"There, I'll Leave You Now. I'll"——

Terrified by what she had witnessed, Annie ran to John in the expectation of finding him seriously injured. But the young man, with a laugh, got upon his quickly and turned to the girl.

"Don't be alarmed, Annie," he said. "A little brush like that couldn't hurt me." He laid stress upon the last word. "The horse is tired out and will lie still. Let's look to the other fellow."

"But, John," she rejoined anxiously, "are you quite sure you are not hurt? You fell with such a crash that I thought"——

"Thought I was knocked out, eh? Not a bit; I've not even a sprain. I'm as tough as a trunk of pine, my girl. Come, where's the chap who rode the horse? Guess he didn't fare as well as I did."

They had not far to search for the luckless rider. Hard by, in a clump of bushes, he was found stretched out on his face perfectly quiet. John stooped over him and turned his body. He was unconscious.

"Quick—some water," he exclaimed.

Annie hastened to the house and returned immediately with a pan filled with water. They bathed the unconscious man's face and rubbed his hands, Annie, meanwhile, lifting his head to her lap. She was on her knees, gazing with startled eyes at the face of the stranger. It was a handsome face, as handsome a face as Annie had ever seen. The features were of almost feminine refinement, although there was a suggestion of abundant strength in the firm mouth and jaw. He was probably quite as tall a man as John Fryer, though much less robust in build. Yet his form shewed a rare combination of grace and power. John, on his side, regarded the stranger with considerable curiosity.

"He's one of those swells from Lenox, I guess, he said presently. "You can tell that by his clothes."

"Yes, he's a gentleman, murmured Annie.

"Oh, we're all gentlemen, if we act our parts right," answered John, banteringly. "Fine clothes don't mean fine hearts, my girl. Chaps like him, though, don't turn up much around here until September. I suppose he's run down to the country for a day or two. Why doesn't he wake up?"

"He's coming to—look!" she said in a low voice.

The prostrate man moved uneasily and groaned. Then his eyes opened only to shut again. After a moment they opened a second time, and rested inquiringly upon Annie. The girl blushed painfully and lifted her head, which had been bent low over him. A slight smile parted his lips, and afterward he whispered:

"Where am I, please?"

"Well, sir," replied John, "your horse ducked you into the bush. You had a hard fall, but I guess you ought to be thankful you're alive. I stopped the horse and might have saved you from the fall, but the beast stumbled and over you went."

"Thank you," muttered the stranger, and again he made an effort to see Annie. But he could only get a faint glimpse of her soft, white throat and snowy chin.

"You needn't worry," John went on, good-humoredly, observing that the stranger had regained his senses and had, happily, missed striking his head, "for you're in safe hands. These are my lands, I may say, and close by is Mrs. Shaughnessy's cottage. The young lady here is Miss Shaughnessy."

"Ah!" The gentleman contented himself with this mild exclamation, and once more he turned instinctively toward Annie.

"If there's any bones broke," John added, "I might carry you to the cottage. Miss Shaughnessy, I doubt not, would give you a welcome there till I could fetch the doctor and have you taken home. You might try to sit up."

"Certainly." The stranger rose to a sitting posture with the help of the others. A cry of pain escaped him, but he laughed that off.

"This is a ridiculous plight for me, Mr.—— May I ask your name?"

"John Fryer."

"Oh, I know the name. You see this country is familiar to me, or used to be. My uncle, Mr. Mansfield—perhaps you have heard of him—has a house at Lenox. He and I ran up from New York the other day to spend a week there, and this is the result. My own name is Alfred Southmayd. So, as we are all now on terms of acquaintance, suppose you and Miss Shaughnessy give me a lift. I fancy I'm badly bruised and sprained. But there are no bones broken. I can't get on my feet alone, that's evident."

The two placed their arms about him, and Southmayd was not averse to grasping one of Annie's little hands which he pressed involuntarily. He could hardly have explained to himself why he pressed her hand, and she did not attempt to withdraw it. There was a tug, a struggle, a gasp of agony, and then Southmayd, pale to the lips and too weak to stand alone, was lifted to his feet. They supported him, while he strove bravely to recover something of his strength. But his strength had been nearly exhausted by this effort, and he could only murmur:

"Well, it's no joke, after all. My nerves are shaken to pieces, and I'm in an ache from top to toe. Better help me up to the cottage, Mr. Fryer. Perhaps Mrs. Shaughnessy will let me lie down there for an hour."

"Mrs. Shaughnessy is an invalid, sir," John hastened to answer. "But I warrant that Miss Shaughnessy will make you comfortable. A sip of brandy and a cup of strong tea will put life into you. Now, easy, sir; this way."

Assisted by his new friends, Southmayd hobbled up to the house and was laid tenderly upon a sofa in the small and shabby parlor. Annie brought a pillow, and on this his head soon rested contentedly. Then John mixed a tumbler of sweetened brandy and water and Annie went out to the kitchen to make the tea. These stimulants revived Southmayd amazingly, and he looked about him with interest. A brief glance sufficed to indicate the poverty of the Shaughnessys. But he knew that the Fryers were a rich farming family, and he wondered what connection there could be between the sturdy young man and this beautiful girl with so pronounced an Irish name. His musings—which were taking an odd direction, as he confessed to himself with admirable candor—were interrupted by John, who had been watching Southmayd with vague sentiments, and who now remarked:

"By the way, we have all forgotten your horse. The brute was winded and has been lying where he fell. Still, sir, if you don't mind, I'll mount him and canter a mile to the doctor's place. I guess you'll need a doctor." Then, turning to Annie, he added: "My girl, I advise you to let Mr. Southmayd sleep till I get back. Maybe—and I think it's more than likely—he'll have to stay here all night. Go and tell your mother what's happened. She ought to know." With this he nodded to the two and went out of the house. He had not cared to wait for arguments or listen to expostulations. Shortly the noise of a horse's hoofs proved that he had gone at once in search of the doctor.

"Can I do anything for you, sir?" Annie asked timidly, as she moved toward the door.

"Haven't you done enough?" replied Southmayd, with a smile. "No, I

fancy I must obey Mr. Fryer. He has a very imperative manner. I presume—that is to say—you are not related to him in any way?"

"He is our friend," Annie responded simply.

"Only your friend?" Southmayd bit his lips at his own exhibition of bad taste.

"Only our friend," she repeated gravely; "but the best and noblest friend in the world. His father was my father's friend. To my mother, my sister, and myself he has been the most generous of men. The house we live in we owe to him."

"Yes, he has the air of a fine fellow," answered Southmayd thoughtfully. "I must become better acquainted with him."

"He is not of your class, sir," she suggested doubtfully.

"Class? Is there a class in this country? That's a rather stupid question, isn't it? But I have just got back from Europe, where classes are the natural order of things; and, since I've been back, I've been told and I've read that its un-American to speak of classes here. There are only the rich and poor, I'm assured."

Annie faltered as though perplexed, then, telling Southmayd that she must go to her mother, she left the room.

Southmayd stared at the door, which she had closed behind her, as if in anticipation of her reappearance. Could it be possible that a poor, sad-eyed Irish girl—she was really an American, if the land of one's birth counts for anything—had impressed him seriously? He put the question to his intelligence not without a sense of ironical humor. He was still a young man—a trifle over 30. Yet he was not at a susceptible age, nor was he susceptible by nature. He had passed through the fires of youth unscathed. His seasons in Frorence, London, and Paris had left his heart untouched. He had skimmed the edge of more than one love affair, and his gay spirit was without a scar. In fact, he had convinced his friends that he was not a marrying man, and he had come pretty much to the same conclusion. But it remains to be added that Southmayd had perfectly clear ideas as to his duty in case he should desire to marry. His joke about classes did not represent his true frame of mind. Born of an old, proud family, he had been taught from childhood to revere certain social traditions. When any of his intimate friends married outside of their sacred circle he was frankly shocked. He had always told himself that he could not stoop to do such a thing. And to-day, unburdened by parental authority, rich, free, the old class feeling prevailed with him tenaciously. So far as his experience went, he had met scores of women whom he admired. He had not yet been moved by the mysterious sensation of love. Perhaps, therefore, he believed himself a little more or a little less than human. At any rate, he was disposed to look upon love with a kind of cynical doubt or disapprobation.

"What a beautiful girl!" he was murmuring drowsily after awhile. "What a mingling of delicacy and dignity! Is it possible that such a creature was born of common parents? Race tells, and if I'm not greatly mistaken, there's race a long way behind her. She has a soul, too; one can see it in her eyes, one can feel it in her speech. She ought to stand with the best, not with the lowest. I wonder if she's going to marry that fellow Fryer? I hope not." At this point he stopped and reflected. "Pshaw!" he continued, "I'm talking like a fool. What is the girl to me?" He turned his face to the wall and fell asleep.

He had slept longer than an hour when he was awakened by the entrance of John Fryer and the Doctor. The latter was quickly satisfied that Southmayd was suffering from nothing worse than shock and surface bruises. He advised strongly that the patient should not be removed to his home until the following day. He prescribed simple remedies, and John promised to attend to these. It was decided, finally, that Southmayd should remain where he was that night. John staid with him until a late hour, and when he departed Southmayd was in peaceful and healthful slumber.

When Southmayd awoke in the morning the sun was already high in the heavens. The old-fashioned clock on the mantel pointed to an hour midway between night and dawn; but the actual time, he judged, was nearer noon. The clock had been running itself, evidently, for a protracted period. Though still sore, the young man decided that there was no longer the least excuse for him to claim the hospitality of the Fryers. He dressed himself carefully, while his mind kept busy at things which he would have been glad to put out of his mind. The sweet face of Annie Shaughnessy rose before him persistently. He was angry because he could not forget the girl.

He made his way, finally, out of the house, and just beyond the doorway he found Annie and John Fryer. They were talking in low tones, and very earnestly. When he appeared they ceased their talk and greeted the young man. There was some embarrassment, he did not fail to notice, in Annie's greeting, and he observed, too, that John was far less cheerful than he had seemed the night before. Annie offered to prepare a breakfast for him, but Southmayd declared that he wanted only a little toast and coffee. Over this light meal he dawdled in a mood which was strangely new to him, and meanwhile he tried to draw Annie into a conversation about herself and her life in this dull, sad place. He was surprised to discover how well informed she was on many subjects, and somehow it pleased him vastly to know that she was, in her poor little way, a student of books. He was too much a man of the world not to recognize the fact that she was a kind of flower in the desert, a naturally fine mind bound down to a bitter and hideous drudgery. He exulted in the thought that it might be in his power to bring such a mind to its right level, to place the lovely girl to whom he paid unconscious tributes of respect amid surroundings which should befit her, and then, again, ended by proclaiming himself an idiot.

While he was sipping his coffee and chatting with Annie, John had saddled the horse and brought it to the door. The animal was quiet now, and Southmayd professed his anxiety to depart. But when the moment of departure came, after he had expressed his gratitude and uttered his good-by to John, after he had pressed Annie's hand rather more tenderly than he had proposed to do, a pang shot through his heart. An indefinable sense that he was about to leave behind him something—someone—that had grown suddenly, pathetically, into his life, struck him unpleasantly. He hesitated an instant. Then, as though ashamed of his folly, he lifted his hat politely and dashed away.

John looked after the rider grimly.

"Well," he said, "I'm glad he's gone. If he had staid longer he might have brought trouble. Anyway, he's lucky to carry an unbroken neck along with him."

Here he turned to the girl. To his astonishment there were tears in her eyes, and she was gazing longingly up the steep road.

"Why, what's the matter, my girl?" he exclaimed. Then, moved by a quick thought, he added frowningly: "Look here, Annie, I hope that chap hasn't been turning your head with his nonsense. If he has, by heaven!"—— He brought his fists together wrathfully.

"He is a gentleman, John," replied Annie, gently, busying herself with some small matters in an endeavor to hide her tears. "He has been very kind."

"Kind! Yes. Why not? But"—— He glanced at the girl, sharply, and repeated in an undertone. "I'm glad he's gone."

"I wonder," Annie said, as if oblivious of his presence, "I wonder—if he will ever come back."

"Come back!" cried John. "What do you mean?"

"Forgive me, I"—— she began. But John interrupted her.

"Do you want him to come back?"

"I do not know."

"Oh! this is madness, Annie," he protested, with a gesture of disgust. "Do you think that such as he cares for such as you?"

"That is a cruel speech, John. I did not think."

"There, don't call me cruel. I couldn't be cruel to you, Annie. But, my girl, don't be foolish. You don't even know this fellow Southmayd. I'd take my oath he's forgotten you already. Bah! we're talking rubbish. Come, Annie, walk a little way with me. The fresh air and the sunshine will clear your head of silly cobwebs."

She put on her hat obediently, and they strolled for a half hour down the Pittsfield road. John was just keen enough, in this brief walk, to avoid topics which he realized were dangerous. He saw that the imagination of the girl had been impressed by Southmayd. Her inexperience and her sensitive nature made her susceptible to fresh influences, especially when those influences came from a handsome, fascinating man like Southmayd. If John could have read her mind, he would have discovered, to his intense grief, that never had she been so little in love with him as now. Never had the idea of marriage with him been so repugnant to her. She did not dream of analyzing her emotions. She merely accepted them passively, and was guided in her duty to herself and to others by a sort of blind faith in what she held to be right or wrong. If she had not been guided so she would have been John's wife long ago. She had every material thing to gain from a marriage with him. But the strong promptings of her soul rebelled against a marriage without love.

John left her at the door in what he would have called a sensible mood. She was outwardly quiescent, but within her heart there was a burning restlessness which troubled her, and that night, as she closed her eyes in sleep, the question was framed again upon her lips, "Will he come back?"

The next day passed drearily for her, though filled with its humdrum duties. Then another day went by, and that was still drearer. But on the morning of the third day all the unspoken desire of her spirit was fulfilled. She was busy at the time with some sewing work and her sister May was playing off in the grass and sunshine. Southmayd approached her at an easy canter. He rode a horse which was gentleness itself. Annie blushed scarlet when he stopped in front of her and doffed his hat, and her pulse beat wildly.

"Good morning, Miss Shaughnessy," he said, as he jumped down and tied his horse to a tree. Then he came up to her, and, after a slight hesitation, added inquiringly, "May I sit down here."

She made a place for him on the bench where she sat, and looked up into his face timidly. Her mere physical beauty affected him deeply, but not so deeply as the intangible charm of her personality. Those candid, luminous eyes—which had been hanting his dreams—seemed to glance to his very soul. No one in the world had moved him before as this lonely child of the hills moved him. He felt as though her presence spiritualized him.

"Well," he began, "you see that I have returned. And on a spiritless nag of a horse, too. Honestly, I'm beginning to put some value on my precious life. I didn't give much thought to it until I got that bad throw, and until I met"—— He checked himself hurriedly, with a smile. "But, Miss Shaughnessy, how do you do?"

Annie could not refrain from a light laugh. "Just as you see me, Mr. Southmayd. My health is as monotonous as my life."

"Yes, life must be monotonous here," he rejoined ruefully. "And where is our friend Fryer?"

"He has run down to Pittsfield, I believe." She had resumed her sewing, but in a nervous, indefinite way.

"An excellent fellow that, and one whom I've good reason to be grateful to. In fact, I've reason to be grateful to you both."

"We were glad to be of use to you."

"Of course—I understand. Still, let me indulge my gratitude."

"And you—are you—are you—very sore yet?" Southmayd was amused at this question, put so naively.

"A bit stiff, that's all," he answered. "Oh, I'm a lucky person, Miss Shaughnessy. My horse might have tossed me on my head, but he only tossed me into your hands."

The color rushed again into her cheeks, and she bent her eyes intently upon her work. But her embarrassment wore off gradually, for Southmayd was both tactful and considerate, and he found wonderful pleasure in talking with her in a simple, natural manner. She had never before enjoyed such conversation as his, conversation which opened the world to her fancy; and when, at last, he had taken his leave, the girl experienced the sensation of having passed out of a realm of enchantment into one of sordid actualities.

Whatever Southmayd may have done to convince himself that he was playing with fire, he was unable to resist the strongest impulse which had yet swayed his nature. Again and again he visited the poor cottage of Fryer's, and again and again he affirmed that he had made his final visit there. His proposed stay of one week in Lenox grew to three weeks, and it was only then, with a keen sense of remorse, that he called a halt and reflected soberly upon the situation. He knew, he could not help knowing, that he had won the heart of Annie Shaughnessy. What, in the circumstances, was his duty? That was the query he puzzled over one morning as he sat in his room at Curtis's. His uncle's house had been closed two weeks previously, and Mr. Mansfield, greatly astonished at Southmayd's desire to remain in Lenox, had been obliged to return to New York alone.

Southmayd, the more he thought, became the more convinced that Annie had grown strangely dear to him. But marriage with her, he declared, was out of the question. It was a preposterous idea. It shocked all his preconceived, hard-rooted notions of social propriety. He was only a human creature, after all, not a hero; a human creature educated within certain strict lines. In the course of his self-searching—which amounted to a kind of sophistry which he was not yet able to fight—he reached a well-defined purpose. There could be no chance of mutual happiness in a marriage with Annie. Therefore he must break with her at once. And, after further pondering, he determined to write to her and then try to forget her.

The next day he was at his uncle's house in New York—since the death of his parents Southmayd had been the inseparable companion of the elder man—and a fortnight later they had taken passage on a steamer which sailed direct to Genoa.

Southmayd's letter was delivered by special messenger at the moment he was speeding toward New York. It was a long time before she could summon up courage enough to open it. When she had opened it, here is what she read:

I had hoped to see you again to-day to say good-by. I must go at once to New York, however, and this little note must be my farewell. I sail for Europe shortly, and, therefore, we may not meet again in many months. But, my dear child, I shall not forget you, wherever I may be. I thank you for the happy hours you have let me spend with you. May Heaven bless you is the wish of A. S.

The words seem to burn themselves into her brain. She sat for several minutes as though transfixed. Her misery had no outlet, not even the outlet of tears. Cold, pallid, with dry eyes set on nothingness, she waited for the world to end, to close over her, to hide her forever from the light. And then a terrible reaction came. A wave of passion leaped through her blood. Lifting the cruel letter to her lips, she kissed it again and again, and bathed it with the tears which streamed at last. And after this burst of unrestrained feeling a calm stole over her. She looked up. John Fryer stood before her.

John had not been an unobservant spectator of the growing intimacy between Annie and Southmayd. He had watched it with gloomy anxiety. He had not ventured to speak of it to Annie, though he had often longed to do so. But a sense of constraint, not unmixed with a certain chivalry, kept him from speaking. He had suffered in his silence, but he was willing enough to sacrifice himself for the girl's happiness. Still, he had prophesied that she would awaken one day from her dream, and that the awakening would be bitter. But he depended a good deal upon this result to make his own claims upon Annie stronger.

"What is it, my girl?" he asked, kindly.

"Nothing, John, nothing," she cried, falteringly.

"You have been crying?"

"Yes—I was foolish. My head aches."

"Tell me the truth, Annie. You have received a letter?"

"Yes."

"From him—Southmayd?"

"Yes."

"I thought so. May I read it?"

She hesitated, But he stooped down and took it gently from her hands. He read it thoughtfully, and, after a brief pause, handed it back to her. She hid it in her bosom.

"He's a coward!" exclaimed John.

"No—no"—— the girl began.

"A coward and a scoundrel!" John continued quietly. He was too profoundly incensed to show his agitation. "He talked of gratitude. This is his gratitude. He a gentleman! He is a thief. He tried to steal your heart, my girl. Perhaps he has stolen it." John laughed mournfully. "And now he is tired of you—and he runs away. He runs away like a scared fox. Ah, my girl, you would not listen to me, you would not listen."

She rose to her feet, an unusual calm and strength in her demeanor.

"John," she said, gently, "you must not speak in that way—of him. I know his heart. I have seen into it. He may return. I may never see him again. He could not marry me. I was too far beneath him. But—I love him—I shall love him always."

From that day Annie resumed her duties bravely, and the name of Southmayd was not mentioned again between her and John Fryer. Only in moments of solitude did Annie give up to her passionate grief, which also held a passionate, secret joy. John, on his part, was now decided to wait until the memory of Southmayd should have passed from her, and until that time should come, he would refrain from urging his love.

"MAY I SIT DOWN HERE?"

The Summer dragged itself slowly out, and in the course of it Mrs. Shaughnessy died. There remained for Annie but two objects after this blow had fallen upon her, the careful bringing up of little May and the improvement of her own slender education. To both of these objects she applied herself diligently. Now and then she cherished a vague hope that Southmayd would write to her, or that he might even reappear. But when September arrived and no word had come from him she put that hope aside despairingly. Yet, if she could have known the truth, if she could have followed Southmayd in his restless journeys from place to place during those weary months, she would not have despaired altogether. For Southmayd was a very unhappy man. His uncle could not make anything of his odd and various moods, his fits of temper, his sullen silences, his listlessness and his loss of flesh and color. This was a new Southmayd to Mr. Mansfield's knowledge. The Southmayd whom he had known was a strong, cheerful, steady companion, not in the least inclined to moodiness or temper. But the elder man held his peace, until, toward the end of September, when they had fixed themselves comfortably in London for the Autumn and Winter, Southmayd broke down the barrier of restraint voluntarily.

"Uncle," he exclaimed suddenly, at the end of their first week in London, "I am going home."

"Going home?" repeated Mr. Mansfield doubtfully.

"Yes, I've had a hard fight, and I give up."

"What do you mean by a hard fight?"

"A fight which has made a man of me; a mental struggle; a struggle against pride and social theories." He added, drily: "I believe you are pretty well acquainted with my social theories?"

"You hold strong views, I know. Good views, too, from our standpoint."

"Hang our standpoint! It's unnatural. What has it done for me? Look at me! At 30 I feel like one at 60. I've lost 25 pounds. These months of travel have been a burden to you and to me. Don't shake your head. You

haven't asked questions, and that was very kind; but I have bored and worried you. Well, here's the truth; I'm in love; in love as a man may be once in his lifetime."

"Ah! that explains everything."

"Oh! no; not everything. I'm in love, but I'm also the maddest of fools. I tried to think that I wasn't in love. I tried to crush the best, the sweetest feelings which I ever had. I tried to forget—her, and I've failed. I love her a hundred times more to-day than four months ago."

"And who is—her?"

"The saddest little wretch in the Berkshire country, as poor as poverty, a tenant on Fryer's lands. She and her mother are known as the lone women of Fryer's. But, Uncle, she's an angel, a heroine, the one woman in the world for me."

Mr. Mansfield held as firmly to the creed of family as his nephew had ever done. In reply to Southmayd's confession he offered such arguments as seemed to him proper and essential. But at the end he gave the young man a warm pressure of the hand and a godspeed, and with that godspeed ringing in his ears, Southmayd returned to America.

October is the glory of months in the Berkshires, and as Annie and John Fryer, standing in their old places near the cottage door, at the close of a day of splendid brilliancy and fiery sundown, watched the blaze of withering country, each felt that sense of melancholy resignation which October brings to those who have known actual sorrow. John understood at last that his was a hopeless love. Annie was adrift—like a spirit that has lost its bearings. They were not speaking, only watching and dreaming. And then, as in that former crisis of their lives, they were disturbed by an approaching horseman. They looked—and they saw Southmayd. He came up to the cottage, as he had come so often before, and his eyes lingered for one long, eager instant on the young girl, who, robed in a plain black dress, her face pale as the snow that would soon cover these ruddy hills and valleys, stared at him as though he was some ghostly apparition. Southmayd jumped from his horse and moved toward her, his hands held out pleadingly. For a moment neither spoke. Then he said simply:

"Annie, I've come back. I've come back for you. Will you forgive me?"

With a cry of rapture she fell into his arms, and John Fryer turned away.—*New York Times.*

### Bugle Song.

The splendor falls on castle walls
And snowy summits old in story:
The long light shakes across the lakes,
And the wild cataract leaps in glory.
Blow, bugle, blow, set the wild echoes flying:
Blow, bugle; answer echoes, dying, dying, dying.

O hark, O hear! how thin and clear,
And thinner, clearer, further going;
O sweet and far, from cliff and scar,
The horns of Elfland faintly blowing!
Blow, let us hear the purple glens replying:
Blow, bugle; answer echoes, dying, dying, dying.

O love, they die in yon rich sky,
They faint on hill or field or river:
Our echoes roll from soul to soul,
And grow forever and forever.
Blow, bugle, blow, set the wild echoes flying,
And answer echoes, answer, dying, dying, dying.

—*Alfred Tennyson.*

### The Riddle of the Sphinx.

The famous riddle of the Sphinx, which was solved by Œdipus, is entirely rooted in metaphor. "What is that animal which in the morning goes on four feet, at noon goes on two and in the evening goes on three feet?" Answer: Man. Here morning, noon, and evening are metaphors of infancy, manhood, and age; also, there is a metaphorical use of the word "feet," which is applied in one place to hands used for support, and in another place to a staff used as if it were a third foot.

Once Nectanebo thought he was sure to puzzle the Babylonian, and his question was as follows: "There is a grand temple which rests upon a single column, which column is encircled by 12 cities; every city has against its walls 30 flying buttresses, and each buttress has two women, one white and one black, that go round about it in turns. Say what the temple is called." Æsop was equal to the occasion, and he explained it thus: The temple is the world, the column is the year, the 12 cities are the months, the 30 buttresses are the days, the two women are light and darkness.

Jonathan Swift made some enigmas. Here are two of them:

I with borrowed silver shine,
What you see is none of mine,
First I show you but a quarter,
Like the bow that guards the Tartar;
Then the half, and then the whole,
Ever dancing round the pole;
And true it is, I chiefly owe
My beauty to the shades below.
Answer: The moon.

I'm up and down and round about,
Yet all the world can't find me out;
Though hundreds have employed their leisure,
They never yet could find my measure.
I'm found in almost every garden,
Nay, in the compass of a farden.
There's neither chariot, coach nor mill
Can move one inch without I will.
Answer: A circle.

—*Harper's Young People.*

### "BEEF-ISSUE DAY."

#### How the Wards of the Government are Given Meat.

There were not over 300 Indians there, although they represented several thousand others, who remained in the different camps scattered over the reservation, wherever water and timber and bluffs to shield them best from the wind, were to be found in common. Each steer is calculated to supply 25 Indians with beef for two weeks, or from one and a half to two pounds of beef a day; this is on the supposition that the steers average from 1,000 to 1,200 pounds. The steers I saw issued weighed about 500 pounds, and when they tried to run, stumbled with the weakness of starvation. They were nothing but hide and ribs and two horns. They were driven four at a time through a long chute, and halted at the gate at the end of it until their owners' names were marked off the list. The Indians were gathered in front of the gate in long rows, or in groups of 10 or 12, sitting easily in their saddles, and riding off leisurely in bunches of four as their names were called out, and as their cattle were started off with a parting kick into the open prairie. The Apaches, Comanches, Delawares, and Towacomies drove their share off toward their camps; the Caddoes and the Kiowas, who live near the agency, and who were served last, killed theirs, if they chose to do so, as soon as they left the pen. A man in charge of the issue held a long paper in his hand, and called out, "Eckhoos-cho, Pe-an-voon-it, Hoos-cho, and Cho-noo-chy," which meant that Red Bird, Large-Looking-Glass, The Bird, and Deer Head were to have the next four steers. His assistant, an Indian policeman, with "God helps them who help themselves" engraved on his brass buttons, with the figure of an Indian toiling at a plow in the center, repeated these names aloud, and designated which steer was to go to which Indian. A beef issue is not a pretty thing to watch. Why the Government does not serve its meat with the throats cut, as any reputable butcher would do it, is not possible to determine. It seems to prefer, on the contrary, that the Indian should exhibit his disregard for the suffering of animals and his bad marksmanship at the same time. When the representatives of the more distant tribes had ridden off, chasing their beef before them, the Caddoes and Kiowas gathered close around the gate of the pen, with the boys in front. They were handsome, mischievous boys, with leather leggings, colored green and blue, and with silver buttons down the side, and beaded buckskin shirts. They sat two on each pony, and each held his bow and arrows, and as the steers came stumbling blindly out into the open, they let the arrows drive from a distance of 10 feet into the animal's flank and neck, where they stuck quivering. Then the Indian boys would yell, and their fathers, who had hunted buffaloes with arrows, smiled approvingly. The arrows were not big enough to kill; they merely hurt, and the steer would rush off into a clumsy gallop for 50 yards when its owner would raise his Winchester and make the dust spurt up around it, until one bullet would reach a leg, and the steer would stop for an instant, with a desperate toss of its head, and stagger forward again on three. The dogs to the number of 20 or more were around it by this time in a snarling, leaping pack, and the owner would try again, and wound it perhaps in the flank, and it would lurch over heavily like a drunken man, shaking its head from side to side and tossing its horns at the dogs, who bit at the place where the blood ran, and snapped at its legs. Sometimes it would lie there for an hour, until it bled to death, or again it would scramble to its feet and the dogs would start off in a panic of fear after a more helpless victim.

The field grew thick with these miniature butcheries, the Winchesters cracking, and the spurts of smoke rising and drifting away, the dogs yelping, and the Indians wheeling in quick circles around the steer, shooting as they rode and hitting the mark once in every half dozen shots. It was the most unsportsmanlike and wantonly cruel exhibition I have ever seen. A bull in a ring has a fighting chance and takes it, but these animals, who were too weak to stand and too frightened to run, staggered about until the Indians had finished torturing them, and then, with blood spurting from their mouths, would pitch forward and die. And they had to be quick about it, before the squaws began cutting off the hide while the flanks were still heaving. This is the view of a beef issue which the friend of the Indian does not like to take. He prefers calling your attention to the condition of the cattle served the Indian, and in showing how outrageously he is treated in this respect. The Government either purchases steers for the Indians a few weeks before an issue, or three or four months previous to it, feeding them meanwhile on the Government reservation. The latter practice is much more satisfactory to the contractor, as it saves him the cost and care of these cattle during the Winter, and the inevitable loss which must ensue in that time through illness and starvation. Those I saw had been purchased in October, and had been weighed and branded at that time with the Government brand. They were then allowed to roam over the Government reservation until the Spring, when they had fallen off in weight from one-half to one-third. They were then issued at their original weight. That is, a steer which in October was found to weigh 1,100 pounds, and which would supply 20 or more people with meat, was supposed to have kept this weight throughout the entire Winter, and was issued at 1,100, although it had not 300 pounds of flesh on its bones. The agent is not to blame for this. This is the fault of the Government, and it is quite fair to suppose that someone besides the contractor benefits by the arrangement. When the beef is issued two weeks after the contract has been made, it can and frequently is rejected by the army officer in charge of the issue if he thinks it unfit. But the officers present the issue I saw were as helpless as they were indignant, for the beef had weighed the weight credited to it once when it was paid for, and the contractor had saved the expense of keeping it, and the Indian received just one-fourth of the meat due him, and for which he had paid in land.—*Harper's Weekly.*

THE AMERICAN FARMER.

"*O fortunatos nimium sua si bona norint agricolæ.*"—VIRG.

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## FARMER LEGISLATION.

Events took a turn on the evening of May 24 which cannot fail o be puite disappointing to the farmers of the country, who had reason to expect legislation by Congress in their interests.

There are now pending before the House the following bills, which have passed the Senate and need the concurrence of the Lower Chamber and the President to make them laws:

The Anti-Option Bill.

The Pure Food Bill.

The Rural Free Mail Delivery Bill.

The Uniform Standard for Grain Bill.

The Bill to Further Restrain the Sale of Oleomargarine.

These measures have been strongly urged by the Patrons of Husbandry, and other farmer organizations. Congress has received a vast number of petitions asking for their passage, and the Committee on Agriculture of the House of Representatives has been for weeks anxiously seeking an assignment of a day upon which they could call these up for consideration and passage. They were particularly desirous of having the two first named put upon their passage at the earliest possible time. The consideration of the Free Wool Bill, the Free Binding Twine Bill, and some other measures have stood in their way, until now when there has developt a great desire on the part of the majority of the House to pass the necessary appropriation bills and then adjourn.

On Tuesday evening, May 24, a caucus of the Democratic Representatives was held to consider the future course of business. There was a very large attendance, nearly every member being present.

Gen. W. H. Hatch, the Chairman of the Committee on Agriculture, struggled vigorously to secure a postponement of the appropriation bills long enough to pass at least the Anti-Option Bill, and he was strongly supported by Representative Bynum, of Indiana, and a large minority of the caucus, but he was opposed by Speaker Crisp, Representatives McMillin, of Tennessee; Sayers, of Texas; Blount, of Georgia; Dockery, of Missouri, and an overpowering majority of the caucus.

Gen. Hatch and Mr. Bynum struggled gamely, but the odds were too great and it was decided to push the appropriation bills ahead of everything else and adjourn as soon as possible.

Gen. Hatch says that he has not yet given up the fight by any means, and that he would continue the contest on the floor of the House. He has hopes of securing special privileges for the Anti-Option Bill on account of its revenue feature.

If the House adjourns without passing these bills, the farmers of the country will feel that they have the right to be indignant.

## ARE THEY VIOLATING THE LAW?

Charges are made all over the country that the railroad managers are habitually violating the Interstate Commerce law—that, in fact, they treat it as a dead letter, except where the enforcement of certain provisions will be of benefit to them. THE AMERICAN FARMER believes that these charges are only too true. The railroads have yet to learn the great lesson that they were made for the country—not the country for them—and that they are just as amenable to the laws as any private individual. They have yet to learn the very necessary lesson that they are the servants of the people, not their masters, and that they must serve the people as the people shall ordain. They are the creatures of the people, and their creators must completely control them.

THE AMERICAN FARMER proposes to make it part of its business to see that the laws governing railroads are obeyed in letter and spirit. If this is not done it will appeal to the people to see that their will is enforced.

We want our readers everywhere to write us as to how the Interstate Commerce laws are obeyed in their particular localities, and give us such particulars as they may be in possession of as to violations of the laws. We will then see what remedy can be applied.

Let everybody who feels interested on this subject write to us.

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THE Rural Free Delivery Bill will probably get through, whether the Anti-Option and other farmer bills do or not, for the reason that it is on the Postoffice Appropriation Bill, which must be passed.

## AN ANTI-TUBERCULOSIS LAW.

New York has now on its statute books a law for the suppression of tuberculosis in the dairy herds of the State. Bacteriological researches have pretty satisfactorily determined that consumption is infectious, and that it is communicated to human beings and to other animals by germs from diseased men and animals. The use of milk from cows suffering from lung disease is a frequent medium of disease to human beings. The first step, therefore, was to eradicate tuberculosis as a means of saving human life; the next as a means of saving animal life. The Health Officers of various Eastern cities have repeatedly testified that there was no way of testing milk for tuberculous germs, and the dairymen of Maine, Connecticut, and rural Massachusetts have complained vigorously that their herds suffered from infection derived from diseased herds near the large cities. The result of all this was that the State authorities of Maine, New Hampshire, Vermont, Rhode Island, and Connecticut have taken vigorous measures for stamping out the disease in the sections under their jurisdiction, and now the Legislature of New York has followed their example.

The law establishes a board "which shall use all reasonable means for ascertaining the existence of" tuberculosis in the herds in the State. It shall employ as many skilled veterinarians as may be deemed necessary for inspecting, isolating, and destroying infected cows. Whenever tuberculosis shall be found it will be the duty of the Board "to take measures to suppress said disease promptly," and the local officers may be required to enforce the Board's orders relating to "the destruction of animals" and the prevention of further infection. Anyone who refuses to obey the Board's orders "shall be guilty of a misdemean," and may be fined $100. "The actual value of the animals at the time they are slaughtered" may be paid to the owners, who must lay their demands before the Board of Claims.

The amount appropriated is not deemed by leading dairymen sufficient for the purpose, but it is enough to make a good beginning, and will be followed by larger grants as soon as the usefulness of the work is demonstrated.

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MICHIGAN has a very excellent law on her statute books making a penal offense for any Superintendent of a State institution to feed the inmates oleomargarine under any of its various forms. This would seem to be a very practical legislative work in promoting pure food.

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*Get up a Club for* THE AMERICAN FARMER.

## TO LIMIT THE SALE OF OLEOMARGARINE.

The following bill, introduced by Senator Davis and intended to remove the trade in oleomargarine from the limitations of the Original Package decision of the Supreme Court, is one that should certainly be passed by Congress before it adjourns:

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled*, That all oleomargarine, as defined by section two of chapter 240 of the laws of the 49th Congress, transported into any State or Territory, or remaining therein for use, consumption, sale, or storage therein, shall upon arrival in such State or Territory be subject to the operation and effect of the laws of such State or Territory enacted in the exercise of its police powers, to the same extent and in the same manner as though such oleomargarine had been produced in such State or Territory, and shall not be exempt therefrom by reason of being introduced therein in original packages or otherwise.

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DR. PETER COLLIER, of the New York Experiment Station, is sanguine that consumption is approaching production in this country, and that "two and a half years will find us unable to export any part of our crops." So mote it be. We can make much more money by selling all our grain and meat, all our eggs, butter, and cheese at home. We ought not only to do this, but raise the whole or nearly the whole of the $200,000,000 worth of farm products which we buy abroad every year. Our own farmer's pockets yawn for the $200,000,000 which we pour every year into the tills of those in Russia, Asia Minor, Italy, France, Australia, India, and South America.

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AMID all the talk of improved breeds, some farmers mention as "a long-felt want" the introduction of a new breed of "hired man," who will take a genuine interest in his employer's farm, stock, and machinery; who will not pound the horses, kick the cows, break machinery, or take "a day off" just at the time when it is very necessary that everybody about the farm should be "on," and that with both feet. There is fame and public gratitude for the man who will develop such a breed.

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EVERY farmer should have a small experiment station on his own place. He is never so wise but he can learn much more about his land and his crops, and he will make a great mistake if he lets a season pass without at least one carefully-conducted experiment as to methods of improving the product of his land either in quantity or quality. Let him try some new fertilizer or seed or method—or all together—keeping careful note of the amount of ground planted, the quantity of seed and fertilizer, the labor required and the yield, compared with a similar area of ground not so planted or treated. This will pay every time.

### RECIPROCITY IN AGRICULTURAL INDUSTRIES.

The man who said, "one country is as good as another, provided you use it for what it is adapted," was a philosopher, though he had never seen but one country in his life, and that was considered a poor one. He had, however, made a fortune by industry and good judgment. This practical truth of a country may apply equally well to regions, farms, and even to farmers. There is an adaptation, an advantage, a possibility, facilities, natural or artificial, permanent or contingent, that are to be studied and used. There are too many things in this question to be discussed here. It is only intended now to hint at the relations of pasture and grain farms, as we have them in this country. A farm is considered the home of its owner or occupant, and should produce a living for the man and his family, and something to lay by for a rainy day. The farm must do this, year by year, without regard to seasons or the fitness of the farm for certain important farm products to eat and to sell. The farm may be one subject to overflows of streams; it may be a thin, barren soil, unsuited to certain crops; it may be liable to drouth that renders it unreliable; but it may be a good grass situation. Again, the farm may be reliable in grain producing, but too valuable to be used for producing grass either as hay or pasture. Here is the situation, and what should be considered a rational view of the situation.

The grain farmer confines his energies to raising grain to be sold in the market, whether the prices are remunerative or not. He has no grass lands; hence no pastures, no stock, no intention of increasing his profits, save by selling off from the farm all that it will produce. He grows poorer in time, and by and by finds his farm, too, has grown poorer in productive capacity. He might have fed the bulk of his crops to fattening animals and kept up the fertility of his soil, but he did not have the enterprise, the intelligence, or possibly the skill and capital to make such a venture profitable. So he did not do so.

The farmer on the hilly, thin or, as likely, low-lying lands in near proximity, perhaps, to grain lands, has been attempting the impossible, at least precarious, systems of farming practiced by his better-located neighbor in raising crops to sell in the same markets at same prices, though costing more to produce. He knew, maybe, that he was constantly laboring under natural disadvantages, but he had not the means or intelligence to devote his farm to live-stock. He, too, is growing poorer, and the naturally thin soil is becoming hopelessly impoverished. He thinks his grain-growing neighbor is a lucky man, and the grain-raiser wishes he had grass lands like his neighbor.

Here then comes in the true idea of reciprocity, and may be put into practical, profitable operation, provided such a friendly principle possesses their natures. An intelligent, business view would suggest that grass lands should be used as grass lands, and grain lands as grain lands, and that one should be as profitable as the other; that an equitable adjustment were possible, and such a harmony would be mutually profitable.

It has long been known by some stock-raisers that it is cheaper to hire pastures than to devote high-priced lands to permanent pasturage. It is acknowledged on Western farms that Wintering stock is easier than Summering; that the Winter roughness costs very little, but the Summers grazing cost too much; that the pasture lands will grow 40 to 75 bushes of corn or 15 to 25 bushels of wheat. This is about a fair showing, and the conclusions are sound.

In the near future it will be found that a mutual dependence exists in agriculture, and can be utilized for the best interests of those who occupy farms. The evolution in agriculture, so apparent in old countries, is already seen and felt to be important in this country. The developments will be interesting as the indications are now curious and often perplexing. The time is near when every acre of land that can be utilized for any productive industry in the older States will be appropriated. The impression that lands that cannot grow corn and wheat are intended by nature "to simply hold the world together" is seen to be wrong, especially if they do or can be made to grow grass. The conclusion is, and will continue, that "grass is king." It is the key note to all animal industries, and these industries underlay the whole problem of fertility, which in turn supersedes the entire industries, trade, and commerce of the earth. The waste lands now may become the most valuable; the hills and mountains may contribute to the benefit of all; the mountain tops can be utilized as pastures in Summer and the valleys depended upon for Winter food supplies. The industry and enterprise of civilized man has no bounds in controlling nature's most hidden, stubborn resources when organized and systematized. Agriculture, the basic industry, is no exception when its forces are aggregated and wisely applied in solving the problem of "what shall we eat, what shall we drink, and wherewithal shall we be clothed."

THE AMERICAN FARMER *is only $1 a year.*

### PENNSYLVANIA BOARD OF AGRICULTURE.

The Spring meeting of the Pennsylvania Board of Agriculture will be held at Greencastle, Franklin Co., on Wednesday and Thursday, June 8 and 9. Gov. Pattison will preside. The principal items of business on Wednesday will be the address of welcome, by D. Z. Zook, of the Franklin County Farmers' Association; the reply by Gov. Pattison; the report of the Committee on the Adoption of the Metric System of Weights and Measures, by Dr. J. P. Edge, of Downington, Pa.; the report of Eastburn Reeder, Delegate to the Dairy and Pure-Food Convention at Washington, D. C.; a lecture by Dr. Henry Leffman, Microscopist and Food Inspector of the Board, and a discussion of the reports.

On Thursday Col. B. F. Winger, of Greencastle, will deliver an address on "Why the Farmer Should Interest Himself in Politics"; George Hopwood, of Fayette, one on "The Farmer the Nation's Greatest Factor"; one by D. W. Lawson, of Dayton, Pa., on "Farmer's Hits and Misses"; H. W. Kratz, Norristown, Pa., on "Social and Educational Conditions in Farm Life Insure Greater Success"; Dr. J. P. Barnes, Allentown, Pa., on "Soil as to Agriculture"; S. S. Diehl, Bedford, Pa., on "Corn Culture"; Prof. S. B. Heiges, York, Pa., on "Phenomena of Plant Life"; D. H. Patterson, Webster Mills, Pa.; on "The Relation of Agriculture to Society." All these will be discussed by the meeting.

Thursday evening Prof. G. S. Hull, Chambersburg, will deliver an address on "What Electricity Has Done for the Farmer, and What it Promises to Do," and Hon. Mortimer Whitehead, Lecturer of the National Grange, on "The Farmers and the Weather."

The meeting promises to be unusually interesting and profitable.

UNDOUBTEDLY it costs the farmer of to-day much more to live than it did his grandfather, but he also lives much better than his grandfather did, and he has much greater opportunities for making money. His grandmother regarded a calico dress as a luxury, and his grandfather probably gave for every yard of it a bushel of wheat which he had laboriously planted by hand, reaped with a sickle, thrashed with a flail, winnowed in the wind, and then hauled from 50 to 100 miles to market. Now, a bushel of wheat, planted with a drill, reaped by horse-power, thrashed and winnowed by steam, and hauled less than 10 miles, will buy from eight to 20 yards of better calico than his grandfather bought. But the farmer's family of to-day wants 100 yards of calico where their grandparents had one. They should have it, too. As our civilization develops our wants increase, and also our means of supplying those wants develop equally rapidly. In the next half century silk will be more plentiful in the farmers' houses than cotton is to-day, and other articles of comfort will be in proportion.

### COMPLIMENTS.

**"In a Handsome New Dress."**

EDITOR AMERICAN FARMER: I have just received a copy of THE AMERICAN FARMER in a handsome new dress. It is very becoming, indeed, and I have no doubt at all that the improvement in the appearance of the paper will sufficiently increase the list of subscribers to fully compensate the proprietors for the investment. I notice that in the future it is to be published semi-weekly. This is another change in the right direction. I believe the time is not very far off when you will see the necessity of publishing it weekly.—JOSEPH D. TUTHILL, M. D., V. S., Chicago, Ill.

**"Diversified and Improved."**

EDITOR AMERICAN FARMER: Inclosed please find money order for $1, amount due you for this year's subscription. I did think I would not take it again this year, but it is so much diversified and improved that I changed my mind.—P. T. STABLER, Ashton, Md.

### SAMPLE COPIES.

We shall be glad to send sample copies of THE AMERICAN FARMER to any address that may be furnished. Those who wish to see the paper, or who want their friends to see it, will confer a favor on us by sending in requests for specimen copies, to be sent to any address they furnish.

Address all communications to

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1729 New York Avenue,
Washington, D. C.

### RAISE CLUBS.

We want every one to try to raise clubs for THE AMERICAN FARMER. It is a splendid journal, and will find favor in the eyes of all who see it. It ought to be very easy work to get subscribers. We will make good inducements for sons and daughters of farmers to get up clubs. Write for terms to club-raisers, and premium lists.

## A SPECIAL OFFER.

### The American Farmer for the Rest of 1892 for 50 Cents.

In order to extend the circulation of THE AMERICAN FARMER and give a great number of people a chance to become acquainted with its many good points, we will make a special offer: *We will send the paper from now until Dec. 15, 1892, for 50 cents.* This is a splendid opportunity to get a vast amount of the very best reading matter for a very small sum. Do not fail to embrace it.

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**THE AMERICAN FARMER,**
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### Summer's Comin'.

She a-wwakin' up, y' bet y'! Can't fool me! I guess't I know
That it ain't by no means Summer just acause th' wind don't blow!
Can't tell me a thing about it—learnt it all long time ago;
Summer's comin'!

Hyear that wotter guggle-guggle underneath th' ole stone wall!
Hyear them robings in th' orchard—purty peart their whistles call!
Hyear them las' year's flies a-buzzin' in th' sun! Pshaw; that ain't all;
Summer's comin'!

Way down yander in th' medder, "Wheodle-wheodle," comes th' cry;
Furder over in th' bresh-pile wrens is hoppin' slick and sly;
Johnny Cotton gits a sorter lazy move as he scoots by;
Summer's comin'!

Smell them fresh-split locus' postses! See that feller diggin' holes!
Feel th' way th' sun's a shinnin' on these faded yeller knolls!
See th' ole mare in th' medder—Golly! Watch her, how she rolls!
Summer's comin'!

Hyear them limpy ducks a squawin' roun' th' puddle's mucky brim!
See that rusty crow a roostin' on th' tippy-top-most limb!
Hyear thet purp a-barkin'—Shawks! Y' needn't say a word t' him;
Summer's comin'!

Don't y' smell thet sof', sweet smell thet's warm an' cool an' damp an' fresh?
Don't y' sniff th' sassyfras a-growin' in th' underbresh!
Don't y' see, er air y' deef, er—Oh, good landy! Wisht you'd hesh!
Summer's comin'!

—*Jack Bennett, in Cincinnati Commercial.*

### By The Editor's Fireside.

TWO WOMEN in the same social circle, and friends, met one afternoon and were talking over the comforts and pleasures of the new houses into which they had recently moved. It chanced that in the course of the conversation one of them spoke of her bright and cheery kitchen, with its numerous conveniences, about which she said she was more particular than of any other room in her house.

"Do you feel in that way?" exclaimed her companion. "I don't. I told our architect to make the kitchen small, and not to put what I call needless expense there. What difference does it make? A girl does not appreciate anything you do for her. I stay there very little myself, and so I do not care if it is not very pleasant."

"But don't you like to think," replied her friend, "even if your servant does not care for air and sunshine—though I believe you are mistaken about that—that your food is better and more healthful for being cooked where there is everything to put the one in charge in good humor? I have heard the idea advanced, and I believe there is truth in it, that a great deal of something besides the mere nutrition from the food is brought to us with it; that something coming from the persons who have its handling."

"And I think that is the veriest nonesense," replied her friend. "If the girl is a good cook and wants to please she will do just as well in one place as another. I don't believe in all of this talk about making things just as comfortable for servants as for anybody else, because they have never been used to anything better than we give them, and it only puts wrong ideas in their heads to cater to their pleasure in this way."

"And I," said the speaker, "am sure that that very thing will do much toward increasing the efficiency of our help. If the kitchen is a pleasant place for people to spend so many hours in, and there is no lack of the conveniences that help to make the domestic machinery run smoothly, girls will be more contented, will work more cheerfully, and will even rise to a higher plane, and greatly increase the comfort of our families, besides diminishing our own cares."

"Yes," said the other, "that all sounds very well; but how many girls did you ever know that kept their kitchen or their own room in good order a week after entering it, no matter how nice and bright and clean it might be? They simply do not care, and I for one am not going to bother my brains and empty my purse for any such purpose."

This woman last speaking is unfortunately a type of a great many who believe exactly what she expressed. They emphatically declare that all effort to make things pleasant in the kitchen is utterly lost. That this is true I do not believe, nor does anyone who has given thought to the matter. Apparently there may be a carelessness, and yet all things in the way of comfort, especially sunshine, pure air, and cleanliness have their influence, even though persons are not conscious of it in any degree, and though patience is often exhausted because it is so difficult to see good results or a decent appreciation of kindness. And yet, though not visible, good seeds have been planted. It is undoubtedly a fact that a dark, gloomy kitchen, with a sleeping room to correspond, will convey only one thought to the mind of the girl, and that is how to get the work done as soon as possible so as to get elsewhere. Many times this is the reason why girls run the streets, as they often do, to their own detriment in many ways. If one only stops to think that in the one part of the house is the family enjoying each other's companionship, and that of guests, while in the dingy back room is one lonely girl shut away with no resources when her work is finished to entertain herself, caring nothing for reading or sewing, it will not seem strange that she grows careless and discontented, or goes forth to seek pleasures that may be questionable.

There are, however, many families who do not keep a servant, but the cooking and household service falls upon the mistress of the house. Many hours must be spent in the kitchen and dining-room. The weariness of many homekeepers, and often their ill-health, may be traced to the fact that the apartments in which they spend the greater part of the day are the most cheerless in the house. Sunshiny rooms will often bring sunshine into the heart, and the hands are thus strengthened for their work, which is accomplished without so great a strain upon both body and mind. The bright side of life is seen instead of the gloomy one, and for this reason alone it is absolutely important that the kitchen should be a place that is pleasant to stay in.

In building a house, then, this room should be as carefully considered as any other. Naturally, it will come at the rear of the building, but it can have large windows and plenty of them. It can be of good size and with all the conveniences that make work easy. It can be prettily painted, with clean, white walls, comfortable chairs, and with an outlook that is at least free from unpleasant suggestions. This should be the case, whether the work is to be done by the stranger who is hired for that purpose, or by the wife and mother who does it for love of her family.

* * *

IS THERE such a thing as an ugly girl or woman? To this question I answer most emphatically, yes. But they are not those whom often the world calls ugly. One of the prettiest young women I ever saw was physically one of the homeliest. Do you understand what I mean? The spirit which irradiated the body was so full of beauty that out of your thought absolutely faded the consciousness of her defects of face and form. She was intelligent, kind, thoughtful, and full of that most desirable thing, tact.

It is true that physical beauty is a great factor in the social world, and it has influence everywhere just the same as any other beauty. Nor is it to be despised or considered of no momemt; for the law of harmony, which is the law of the Infinite, demands symmetry in everything, but through the disobedience of law this is rendered impossible in all conditions. Humanity can only approach the perfect by a long course of effort, and it is in this way that the ugly girl becomes in a way beautiful, as I described before.

It is strange that the world does not appreciate the fact which would be patent if history were carefully read; that the great things, the good things, the wise things which have been done are almost invariably the work not of the most beautiful, but of those who are often called ugly by those with whom they are only casually associated. It is easy to see that the impress made upon the times by such women as Susan B. Anthony, Octavia Hill, Clara Barton, and others we might mention, will be far stronger and more lasting than that left by Lily Langtry and her ilk who are famed for beauty of form and feature. It is the beautiful women who set the men by their ears; it is the ugly women who put the world to rights. It is possible for ugly women, so called, to so beautify their bodies through the outshining of a lovely spirit as to render them not only attractive but lovable even to the extent of carrying away the palm from their more physically gifted sisters.

Some author writes "the ugly girl may not be much of a success, and in the purely ornamental positions of life she may even be a flat failure, but wherever there is work to be done or there are burdens to borne she then comes to the front." This is true, and the ugly girl may often congratulate herself upon the ugliness that leads her to turn in other ways to make her life successful, or in any degree a satisfaction to herself, rather than to depend upon the pretty face to win for her happiness and prosperity. She may be thankful that she is obliged to add to her equipment for her life work by cultivating her mind and using her energies to make the place which she imagines the pretty girl can take without effort. There are always compensations in this world, and the ugly girl may find them in all times and places if she so wills.

### HINTS FOR HOUSEKEEPERS.

#### How to Use Cheap Thing to a Good Advantage.

Years ago pretty dresses made of linen lawn figured in colors were considered very desirable, but their day passed away, and they are now rarely seen except among the few who have retained their love for them because they will bear laundering so nicely. That their day will return is evident now, but at present they are applied to another use, and that is for curtains and the covering of sofa pillows. The curtains are made with a deep frill, and are very pretty for bedrooms or for a sitting-room. Of course, one needs to use judgment and taste in selecting patterns for the purpose.

Many of these Summer goods can be used for decoration to most excellent purpose, and as they will look so nicely after being washed and ironed it is economy to employ them. Another thing which is put now to good advantage is the thin muslins which have gay flowers over white grounds, and these are draped at win-

dows, etc., over some color. Then there is the plain, dotted muslin, and what is so cheap but is after all so very pretty and desirable, the different colors of cheese-cloth. A pretty home that I know of had all of its hangings made of this material, and it was a very bower of beauty at a very small expense. People are often afraid to use cheap materials for fear someone will think it is impossible for them to buy anything better. Of course, this is a very foolish kind of pride. The fact is that those who can buy much more expensive articles often use the cheap ones, preferring to change oftener.

Someone would like to know in regard to sash curtains. They are often now made of white muslin with a broad ruffle on the edge, and then they are fastened to the window sash at the top, lying close to the glass and tied back with a cord and tassels. If it can be done it looks well to have sash curtains all over the front of the house of the same material and style, and then the inside curtains can be varied to suit the rooms.

A very good arrangement for the head of a bed which is placed where it is subject to drafts or where the light falls unpleasantly into the eyes of the sleeper is described in the May *Decorator and Furnisher*. It is made by putting a shelf 18 inches wide, or wider if desired, against the wall above the bed. Let it project over. To the back of this attach curtains of chintz or silkiline, allowing it to hang in slight folds and perfectly straight across the front of the shelf; fasten full drapery of the same material, catching it back to the wall and looping it just below or even with the bed. This gives a very pretty touch to the furnishings of the room, besides being very convenient and comfortable.

A pretty bookcase may be made with very small expenditure by three boxes made each one-third shorter than the other. Shoe boxes may be used. Set one upon the other so that one side will be perfectly straight while the other ends will form steps. Get the split bamboo and fasten to the edges, thus covering any roughness that may come in sight. This bamboo is pretty of red, and can be purchased in that color. If the bookcase stands where the straight end is hidden it need not be trimmed, but if not it may have a finish of silkiline laid in folds and fastened top and bottom with gilt-headed nails. The steps should be trimmed in the same way. These steps are utilized for holding ornaments of any kind.

## ABOUT TABLE DECORATIONS.

### What All Housekeepers Like to Know.

For producing dainty effects upon the table, doilies of all kinds are seen. The heavy corded or straw mats no longer appear. In their places are used doilies of butcher's linen, or any other heavy kind, embroidered in colors for putting under hot dishes. Fine linen-cambric and bolting-cloth are placed under the smaller dishes.

A pansy table is especially pretty. An oblong piece of butcher's linen, with purple and yellow pansies embroidered upon the edge, is employed for the meat platter. Under the vegetable dishes smaller ones are placed. There is a pansy doilie for each butter dish. In the center of the table a bowl of pansies rests upon a round mirror which comes for this purpose. The finger bowls are put upon gold-banded china plates standing upon pansy doilies.

People who live in the country have one great advantage over those in city homes. There are the woods, the orchards, and the fields with all their floral treasures ready to be gathered and used in making the house look beautiful. There is nothing prettier than the fresh blossoms from the peach, apple, and pear tree, or the beautiful wood violets that can be found in such profusion in many parts of the country at this season of the year. A country housekeeper need never be at a loss for decorations at any entertainment she may choose to give when there is such a wealth of these beautiful things right at her hand, and costing only the trouble of gathering. Even in the homes of the wealthy in cities, where often they spend hundreds of dollars for flowers for a single entertainment, the treasures of the orchard are coveted, and are ordered from a distance for some festive occasion. I read somewhere a day or two ago of a luncheon where the dining-room was full of peach blossoms, while the table itself was made beautiful by large clusters of the same exquisite flower. Right here it may be a good place to say that the plain white china is again more fashionable than the richly-decorated plate that has been used. In the most fashionable houses where expense is not regarded, new china is all of the plain, clear white, with perhaps a slightly scalloped edge. The only ornament upon the plate is a monogram or a single initial in gilt or in some favorite color of the hostess. The housekeepers in the conntry who have mourned because they have had only gilt-edged white china during these days that gay colors and much decoration have reigned, can now rejoice that they have what is considered much more elegant.

### Breakfast Menu.

Oatmeal. Fried Black Bass. Johnny Cake.
Sugar and Cream. Rolls.
Fresh Fruit. Saratoga Potatoes. Coffee.

### For the Home Table.

SNOW BALLS.

Put one cupful of rice into one quart of milk and cook slowly until the milk is absorbed. It is best to cook in double boiler to prevent all danger of scorching. When the rice is fully swollen take about two tablespoonfuls for each ball and tie tightly in the center of a piece of cheese cloth six or seven inches square. Stand these in the steamer for 15 minutes. When taken out of the cloth they will be found to be balls as white as snow.

TO FRY SCOLLOPS.

Put the scollops in boiling water and let them stand on the stove for five minutes. They must not be boiled, only scalded. Drain and let them dry. Dip them in the beaten yolk of an egg, then in fine bread crumbs. Again dip them in the egg and lastly in the crumbs. Salt and pepper them before dipping in the crumbs. Fry in hot fat.

MOCK CHARLOT RUSSE.

Take one-half box of Cox's gelatine, put in just sufficient water to cover it; beat the yolks of three eggs with one and one-half cupfuls of sugar; add a pinch of salt and stir in one quart of boiling milk as for custard. Put the gelatine into the mixture, and when cool stir in the whites of the eggs beaten to a stiff froth and flavor with vanilla. Line mold with lady fingers or sponge cake, and pour in the mixture. Let stand until set enough to turn out.

NUT CAKE.

One cupful of butter; two of sugar; one scant cupful of milk; six eggs, whites beaten separately, and save one for frosting; one and a half teaspoonfuls baking powder or one teaspoonful of cream-tartar; one-half teaspoonful of soda; three and one-half cupfuls of flour; one cupful of meats; one-half teaspoonful of lemon; one-half teaspoonful of vanilla. This makes two loaves.

EGG OMELET.

Six eggs; two tablespoonsfuls of flour; one teacupful of milk; one teaspoonful of salt; fry in butter, a piece the size of an egg. Beat the yolks separately, stir in the flour, then add milk, and last the beaten whites. This makes two omeleta. Fry in common-sized spider and set in the oven a moment before turning out.

PICNIC BISCUIT.

One pint of flour; one tablespoonful of butter; one coffee-cupful of milk; one-half teaspoonful of salt; mold or pound 30 minutes. Cut out round, prick with fork and bake.

## WORK FOR BUSY FINGERS.

### Some Pretty Things for Making Home Attractive.

COMBINED APRON AND BAG.

Take a yard of bolting-cloth or India silk, as preferred. Turn up at the bottom one-third its length to form the pocket or bag. Then stitch a soft ribbon beneath the edge of the upturned piece to form two casings and continue it around the apron back of the pocket. In these casings are run ribbons which form bows at the sides of the pocket. The top of the apron is faced also with a ribbon to form a casing, through which a ribbon for the ties to the apron. If the bolting-cloth is used, paint or embroider tiny sprays of flowers upon it. To change into a bag, fold the top above the pocket carefully in the inside of the pocket and draw up the strings by the bows at the side. This makes a very pretty and useful gift.

FLOOR MAT.

Cut pieces of gay-colored tapestry Brussels carpet in strips one-eighth of a yard wide, the quantity to depend upon the size of the mat. A yard would cover about a third of a mat the width of the carpeting. All kinds of pieces can be used, but they must be cut across, and not with the length. Use a piece of hemp carpet for a foundation. Ravel both edges of the strips, leaving three or four threads in the center. The wool will curl up, leaving the linen filling exposed, which must be pulled or cut out. Sew these strips upon the hemp foundation with strong thread, inclosing the four threads left in the center with each stitch. Have the strips far enough apart to lie thickly over the foundation. Strips of ingrain carpet may be used in the same way, but will have to be sheared a little after sewing on.

DUST-CLOTH BAG.

Take a piece of scrim with thick and thin stripe, one yard long. Ornament the thick stripe with brier stitch, or any other fancy stitch, with maroon embroidery silk. Line the strip of scrim with light-blue satin. Turn up 10 inches for the bag. Point the other end, and draw the lap through a ring, that is then tacked firmly. Decorate the bottom of the bag and the top with blue and maroon tassels or fringe.

WILD-ROSE BUREAU SET.

Take a piece of bolting-cloth the length and width of the bureau top. Have a pattern of wild roses stamped around the edge with stray leaves and buds running toward the center. Paint the roses and button-hole the edges, so that the outer edges of the petals can be cut out. The embroidery silk must, of course, be the wild-rose shade. Paint the leaves and buds with their proper shades, and outline them with corresponding shades of silk. The outline stitch can be used for these, as they are on the inside and not to be cut out. Line the bolting-cloth with a pale shade of pink lining-silk or silesia. Take a cushion of the shape of an open rose. Cover with the same shade of silk as the lining to the bureau cover. Make a bolting-cloth top for the cushion, painting the center like a rose, and button-hole stitching the edge. Toilet mats may be made by following the same design.

## SHEEP AND WOOL.

### Clippings.

No man can afford to keep a run-down flock; it will not pay.

Good mutton and good wool are the results of feed, climate, and human skill.

Skilful, successful sheep-raising is always found in connection with liberal natural supplies.

The sheep-owner that has failed to improve his flock has not made the best use of opportunities.

A dish of tar and salty grease should be prepared and in readiness to apply to all cuts that may occur on the shearing floor.

Too much caution cannot be given on shearing ewes about clipping the teats. A ewe with a clipped teat is ruined for breeding purposes.

The mutton market is growing more particular all the time. The people who eat mutton begin to know the good from the poor by looking at it and touching it.

Some men complain that sheep do not pay. How do they know? They keep no account with the flock, the farm, nor anything else. Do they know anything about their business? Of course not.

It is questionable whether the practice of washing sheep before shearing should be continued with American flocks. It has always been uncertain in results, save in deceiving the local wool buyers.

The importance of using a pure-bred ram has not been properly considered by some sheepmen. A thoroughbred registered ram reduces the breeding to a mathematical certainty, or as near as is possible.

Scientific sheep husbandry means making a success of the business. Many a sheep-raiser is a scientist, though he may not be able to sign his name or read a word. He knows his business from "a to izzard;" and that is science.

A shearer that cuts a sheep is either nervous, careless, or don't care if he does; he should be cautioned, corrected, or sent away. Some sheep are more difficult to shear than others, but that is no excuse for skinning it alive.

Many a man at lambing time, with ewes in bad condition, without milk; lambs coming thick and fast, the weather bad, without any of the comforts of barn-sheds or dry yards, has concluded he has no business trying to keep sheep. He is right, and should stick by his convictions.

A man of genius may find a profit in sheep, no matter what the competition may be. The way to compete is to compete so the other fellow is not in your way. Sell what he can't raise, at least does not, and sell when he has nothing to sell. This is business, not theory. Try it.

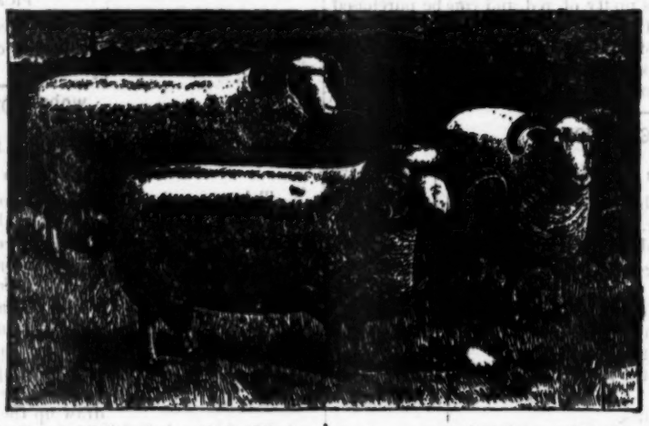
In 99 times in every hundred the shepherd's dog is more than a nuisance. It is a relic of barbarous pastoral life, and belongs there. On the farm it is of doubtful utility. The most marvelous handling of sheep with a dog may well have been pronounced a positive act of cruelty to the sheep.

## DORSET HORN SHEEP.

### Something of their Early History and Development.

Bishoff's, Vol. 1, p. 261, address to the Society for the Improvement of British Wool—"Observations in the different breeds of sheep in England"—gives the character of sheep then found in Dorsetshire, "a horned breed, with a good fleece, but not well shaped."

Milburn, an old English writer of mutton-producing breeds, says of this species of sheep: "Though not remarkable as a mutton-producer itself, it is used for the purpose of supplying London with that form of it called lamb. It has the peculiarity, common to no other breed, of breeding twice a year. The mutton, however, is fine-grained and well flavored. The Dorset sheep is not unlike the Merino at the first blush. It has a fine, small muzzle; face and legs covered with fine hair, and these, with the wool, are completely white. The horns are large and spiral in the male,



exactly resembling those of the Merino, and in the female they are bent downwards by the side of the face, describing nearly a circle. The wool is fine and short, and amounts to eight or 10 pounds per animal. The breast is full, but narrow, and by no means deep; the shoulders light; the neck rather long, and the legs the same, but light boned. It stands taller than the Southdown. The hind quarters are heavy, and the tail long and bushy at the end. The ears are long, and extend sideways; the eyes full, prominent, and expressive. The wethers are sold for the butcher at three years old, and weigh from 18 to 20 pounds per quarter. They are good feeders; the mutton is well marbled. The great peculiarity of the Dorset sheep appears to be that while other breeds receive the ram only at one and the same season, the Dorset will take him all the year round, and even while the lambs are sucking. There is thus the power of supplying lamb at any season of the year for the pampered appetite of the epicure, and vast sums are thus realized by those who keep them for the purpose."

Youatt, an able authority, confirms the description so fully quoted above, and is strongly of the opinion that no other breed compares with the Dorset for the general purpose of lamb-raising, whether for house lambs or grass lambs.

Another English authority, who speaks from experience and the present time, testifies to their remarkable fecundity, and the great quantity and richness of their milk, which may sometimes cause the lambs to scour unless due precautions are observed. This author notices the fact that yeaning, as in the long past, seldom caused trouble or losses. Dorchester is in the center of the area occupied by the Dorset sheep. This area is known as the Chalk Hills. Both the Dorsets and Southdowns are classed as the upland races, and have for centuries occupied these chalk downs as their own peculiar habitat.

The student of sheep husbandry will find the history of this occupancy a most interesting and instructive chapter. As early as 1793 we find the contest for supremacy between the Dorsets and Southdowns being waged with unremitting warmth and bitterness. The profits of sheep raising before that date had depended upon the wool product. The Dorsets gave from one to one and a half pounds per fleece more than the Southdown, but the down wool brought the most money at that time, and the Dorsets were forced from the place they had long occupied and retired to the richer lands of the western part of the County. Here they were carefully improved, as was necessary, both in carcass and fleece, and in a few years found favor with their old friends who for a time had abandoned them for the Southdowns. Their fleeces were in preference on account of its peculiar whiteness and greater fineness and better mutton qualities than it had possessed. The victory seemed in every way complete, and, so far as the Southdowns were concerned, might have probably remained. But agriculture had possible fitness on these chalk soils, and the downs were broken up for purposes of tillage. This afforded opportunity for a new rival in the Hampshire Downs; and though almost unexpected, the Dorsets, having been forced to modifications, already referred to, were found to be capable of holding their own. The improved size, shape, early maturity, feeding qualities, better fleeces and, above all, their marvelous fecundity, together with their willingness to accept the ram at any time, and their motherly qualities, gave them an importance their rivals could not overturn. It is worthy of note that these qualities should have been preserved in connection with all the changes of qualities that they had undergone. The opposite has always been observed with the higher improvement of other races of sheep. From being a very small breed of sheep, short in the carcass, high on their legs, light in the shoulder, bad in the neck, giving from eight to 10 pounds to the quarter when fat, fleeces three to four pounds in the yolk and of inferior quality, adapted to the scanty pasturage of the chalk lands, they have been improved by selection and by the introduction of better systems of tillage into the sheep we find them to-day. It has been presumed these improvements come by crossing, but Youatt says, "crosses with the New Leicester and the Dorset sheep have not been attempted on any extensive scale.

The fortunate circumstances of the introduction of the Dorsets to American agriculture are worthy of observation in this connection. The wool industry was experiencing one and perhaps most severe depressions in the history of wool-growing; the mutton industry had suddenly attracted the enterprise of American farmers; the mutton-lamb, hitherto a luxury, became a necessity with people who lived well. From the use of Spring lamb, the people asked for lamb throughout the entire year. The prices and vast demand stimulated the raising of this class of mutton. This industry came so unbidden, and the systems were so little understood by the average farmer, that many were at a loss to venture into the business. The boom of mutton raising was "a boon from heaven," but was not recognized as worthy of attempting by the common agriculturist. New branches of the sheep industry and agriculture came into existence at once, and seemingly came to stay. The Dorset Horn sheep certainly were very timely in their coming. Their popularity is one of the wonders in the sheep industry of this country. The conditions of soil, climate, and use so peculiarly belonging to their English home can be readily duplicated in the United States. All these circumstances are indeed propitious and hopeful. It is not to be wondered at that their popularity should have been phenomenal. They came to this country at the right time to catch the tide that sent them to the front in usefulness. Mutton held the key to successful sheep-raising, and lamb was the very pink of the industry. These were the prominent characteristics of the Dorset breed of sheep. It is wonderful that these qualities have been so prominent in all their record for centuries. Fortunately, as wool-bearers in England a century ago, they did not hold their own with the Southdowns; this was overcome by skilful management, and the especial qualities for mutton raising esteemed and preserved. It is a matter for congratulation that the enterprising gentlemen who have introduced this breed of sheep have put them upon their special merits. It is believed they can maintain their old time place in agricultural sheep husbandry in this country as they did in England.—R. M. BELL.

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A report from Vienna says: "Wool exports from south Russian provinces on the Don have been entirely ruined by the McKinley tariff law of the United States. Because of the low quality of their wools they are not able to compete with the markets as Australia finds possible."

## THE DORSET HORN SHEEP.

### Their Introduction into the United States and Rapid Development.

The Dorset Horn Sheep Breeders' Association of America was organized at Pittsburg, Pa., March 31, 1891, with 31 charter members, M. A. Cooper, Washington, Pa., Secretary. The first annual meeting occurred Jan. 13, 1892. The Secretary's report shows 1,004 certificates of record here issued during the past year to members, and 31 to non-members.

Eighty-three transfers were issued; 134 applications are on file in the office, with almost daily accessions. Of sheep recorded, 152 are rams and 883 are ewes.

Of sheep upon record, 598 were imported and 437 American bred. Of the American bred, 128 were reported to be twins. During the year 1,213 letters and circulars were sent out from the Secretary's office.

The total receipts for the year were $900.75; expenditures, $284.74; cash balance on hand, $616.01; membership, 69, with five applications. The membership represents 16 States, with one member each from Canada and England. The States are represented as follows: Pennsylvania, 21; New York, 16; Connecticut, 6; Massachusetts, 5; Minnesota, 3; Indiana, 3; Ohio, 2; New Jersey, 2; Virginia, 2; Wisconsin, 1; Oregon, 1; Colorado, 1; West Virginia, 1; Iowa, 1; Kentucky, 1; Maryland, 1.

This was the first Dorset Horn sheep association that had been organized. English breeders have established a Dorset Horn Flock Book during the last year—"History of the Introduction of Dorset Sheep into the United States and Canada."

The first importation of a new breed of sheep into a country becomes an event of interest as the popularity of the special family spreads throughout a large area of country. Their early history is sought after and read with a zest that is akin to that taken in local events of less magnitude. The bringing to notice of a new family of sheep in a country as diversified in its adaptability to the production of wool and mutton as the United States must become a matter of interest to the student of sheep-husbandry, as well as an incident in the general history of a country that should be preserved for the information of those who in after years may desire to acquaint themselves with the circumstances connected with their introduction. We feel warranted, says Secretary Cooper, in saying that the following will be found to be practically authentic:

In the Fall of 1885, Messrs. E. and A. Stanford, Sternny, England, entered port at Quebec, Can., with 50 ewes and six rams, and proceeded to Markham, Ontario. A selection from this flock was exhibited at the Fat Stock Show at Chicago, in a few days after their arrival. While en route from Markham, Ontario, to Chicago, Ill., in a crowded car, five of the ewes dropped 11 lambs and cared for them all. At the close of the stock show Mr. Burleigh, of Vermont, purchased the exhibit. Mr. Wm. Rolph, of Markham, Ont., purchased all the ewes in this importation, except those taken to Chicago, and later disposed of 30 ewes and six rams to Mr. V. E. Fuller, Hamilton, Can. Two years later (1887) Mr. Stanford made his second importation of Dorsets. Unfortunately, Mr. Stanford upon his return trip to England was shipwrecked and lost his life. Since 1887 several importations have been made by Canadians, and this brings us to the date of the first importation direct to the United States. There is but little doubt that Mr. Burleigh, of Vermont, owned the first Dorsets in this country. Wm. Daly, Lockport, N. Y., on the 25th of March, 1887, purchased a ram and two ewes from V. E. Fuller, Hamilton, Can., for the sum of $170. They were of Stanford's first importation. M. M. Small, Cooperstown, Pa.; J. M. Ham, Washington Hollow, N. Y., and S. B. Griffin, Canton, Pa., were among the first Dorsets in the United States, having purchased Stanford sheep as early as 1887. The first direct importation into the United States was made by Maj. Adin Thayer, Hoosic Falls, N. Y., about the 10th of June, 1887, and were landed at Boston, Mass. It was at the suggestion of Mr. J. S. Woodward, Secretary of the New York State Board of Agriculture (Maj. Thayer was Assistant Secretary and Treasurer of the same Board), that Mr. Thayer wrote to a brother, then in England, requesting him to visit Dorchester and purchase 12 Dorsets from the well-known flock of Henry Mayo, Cokes Frome, Dorchester, England.

It was the good fortune of the writer of this sketch to be the guest of Maj. Thayer a few days after the arrival of these sheep on his farm. Their enterprising owner was greatly pleased with them and took delight in showing them to his many friends. Maj. Thayer, the earnest, dignified, chivalrous gentleman, has since died.

Although it has only been five years since the introduction of the Dorsets, there are now known to be 88 flocks of thoroughbred Dorsets scattered through 16 States. They have acclimated with great uniformity and satisfaction.

### Permanent Progress in Sheep-Raising.

More permanent progress has been made in sheep culture during the last five years than during the last half century in this country. There is more inquiry after information as to methods suiting agricultural sheep-husbandry than was ever known before during the history of the industry in this country. It cannot be doubted that these are hopeful signs. There is less disposition to differ on the merits of breeds of sheep for this and that purpose than formerly. The central thought of the sheep industry is reconciling all the questions into a useful profitable whole.

### Early Sheep Shearing in Maine.

Are the sheep-raisers in Maine so awfully cruel that the State Society for the Protection of Animals should prosecute them for early sheep shearing? The statistics of the United States Department of Agriculture for April, showing the condition of farm animals for Maine, gives losses of sheep from all causes 2.5 per cent.; in column of losses from Winter exposure no losses are given.

The State Agent reports to the Department: "Sheep are in a very healthy condition. There is no prevailing disease, contagious or otherwise. The greatest loss has been occasioned by dogs."

### Sheep Raising Don't Pay?

How is this? Monday, 25, at the Arlington stock yards, Georgetown, D. C.: "Spring lambs, 8 to 11 cents per pound; lambs, 5 to 8; wool sheep, 5 to 6½; clipped, 4 to 5½."

Last Spring the supply of lambs ran short. The demand was kept up all through the year for good lambs at good prices, and the supply was limited. Some good "seconds" from Virginia were taken at good prices, but was "as a drop in the bucket."

There is room for many sheep feeding and "lamb plants" convenient to Washington City market.

There must be some misunderstanding about the business; some lack of information as to what capital and fixtures are necessary to engage in the business successfully.

If hogs were in such demand hundreds of old sows would be set to work raising pigs. Everybody with an acre of land would keep a few hogs. People understand the raising of hogs. Everybody knows where to begin, how to feed, manage, and sell to an advantage. There is nothing more difficult about the feeding of sheep or the raising of lambs, when there is as much profit in them, than in raising and fattening of pigs. It is time this mutton lamb business was studied. There is no better market than Washington City affords, and no better facilities for the business can be found anywhere than contiguous to this city. It is an oversight to allow Chicago and the West to supply this market with mutton when it can be grown here as cheap as anywhere in America. Maryland and Virginia has as cheap and as good feed; as cheap land, as good and healthy climate for sheep, and pastures that give as luscious, juicy mutton as can be grown any place. Again, we say, there is lacking the intelligence and enterprise to extend the business throughout this whole region wherever grass grows and water runs. The natural and commercial facilities are all that could be wished for.

### A Boom to Sheep Feeding.

The feeding of Western sheep was begun in Nebraska as a business about six years ago. The cheap feed and the range sheep offered opportunity for a new branch of the sheep industry to the enterprising farmers. From small beginnings the business has grown to grand proportions. Hitherto, they have fed only in the Winter. The *Drovers' Journal* says: "The heavy sheep-feeders throughout Nebraska are beginning to stock up the second time with feeders." This has advanced prices, but the confidence in high prices of mutton for the next 90 days warrants this new departure from the usual practice. It is estimated 100,000 sheep will be fed as the second crop of Nebraska.

### Patriotic Women.

The World's Fair building by the State of Missouri will be carpeted throughout by the united efforts of the women from that State.

The wool will be grown in the State; the design and weaving will be by home talent; it will be put down under the immediate supervision of a committee of women from Missouri.

## WOOL AT THE WORLD'S FAIR.

### The Agricultural Department Wants to Make a General Exhibit.

The following circulars explain themselves:

U. S. DEPARTMENT OF AGRICULTURE,
WASHINGTON, D. C., April 1, 1892.

The Secretary of Agriculture, recognizing the importance of the sheep industry of the United States, has expressed a desire that there be made at the Columbian Exposition an exhibit of the wools of the world.

The collection of samples will be more complete, it is believed, than ever before shown, and will be of great value, giving as it is proposed the characteristics of wools from the highest type of sheep to the very lowest; also showing in a comprehensive way the modifications and effects of climate upon standard varieties and the adaptability of varieties to special localities. Mr. Edward A. Greene, of Philadelphia, Pa., and Hon. John T. Rich, of Elba, Mich., have been appointed by the Department to collect and classify these samples.

The wools of each State will be arranged so as to show completely all grades and classes of wools of that State. The Department is desirous of accompanying each sample with all information possible, and has therefore decided to obtain the samples from growers. The Department has prepared blanks to be filled up by contributors. Any special information not asked for on the blanks may be given by letter.

Samples of each quality must be not less than 14 or more than 17 ounces. Seedy, burry, or sandy wool will not be exhibited.

The samples will be placed in glass jars, which will be labeled with the grower's name and address, together with a description of the sheep and quality of the wool.

All samples must be sent to Mr. Edward A. Greene, 24 S. Front street, Philadelphia, Pa., who will, upon application, furnish small bags, in which the wool may be sent by mail free, and to whom all correspondence should be addressed. Where more samples are received than are necessary, the best representative samples will be exhibited. A circular will be sent by Mr. Greene giving details of what is wanted, also the manner of selecting, reporting, and sending the samples.

We should be glad to obtain samples of wool grown by you. If you are inclined to assist us, please inform Mr. Greene, using the inclosed envelope.

Yours respectfully,
EDWIN WILLITS,
Assistant Secretary.

The Agricultural Department will exhibit at the Columbian Exposition between 3,000 and 4,000 wool samples from all parts of the world. They will cover all classes of wool, from the highest to the lowest. Especial attention has been given to the selection of samples of wools that compete with our home-grown wools; these were procured through a special agent of the Treasury Department, sent abroad for the purpose of procuring samples for Custom House standards.

The Department is desirous of obtaining the American samples direct from the growers, so that comparison can be made with wools of the same character, grown in different parts of the country. The samples will be placed in glass jars, labeled with the grower's name and address, also with description of the sheep and wool. Assistant Secretary Willits is giving wool and sheep especial attention, as he is desirous of furthering the interests of this great industry. With this view he has requested Hon. John T. Rich to make a report to accompany this exhibition.

Mr. Rich will, when the collection is completed, examine the samples comparatively, and being a practical sheep-breeder of long experience, his report will be of great value.

Each sample should be about one pound in weight and be taken from the body of the fleece. Bags for the same and blank invoices are furnished by the Department.

Samples can be mailed without payment of postage.

Should you desire to have your clip represented, please address for particulars,

EDWARD A. GREENE,
Philadelphia, Pa.
JOHN T. RICH,
Elba, Lapeer Co., Mich.

# THE APIARY.

### Hummings.

Dandelions make good honey, and the bees find it even in the despised tansy.

Feed the bees all the odds and ends of honey, and put the rest in good shape for the market.

On chilly mornings put water warm as milk into the drinking vessels, and you will save many lives which will be lost by cold water.

If the hive is foul from bees dying with dysentery, scrub it out thoroughly with a brush and soapsuds, and then rinse it with boiling water.

Hives containing dead bees should now have the frames lifted out, so as to break the cluster, for if the dead bees remain and decay, the combs will be injured. Dead bees remaining in the cells do no harm, for they will dry up and shrivel, and the bees can then pull them out.

To preserve combs, they should be kept in a dry, cool cellar, to prevent the eggs of the moths from hatching. Spiders, by building their webs between the combs, keep off the worms.

Hives should be placed on level ground rather than on a hill, as the bees should not be exposed to heavy winds. Besides this, they should not be expected to fly up a hill when they are loaded with pollen or honey.

Among a certain class of beekeepers, great attention is paid to the color and beauty of bees. The Italians do not pay any attention to this detail, and their bees are of a distinct variety, some of them being dark and even black.

An excellent method of providing water for the bees is to have near the hives a large, deep dish, with a cloth weighted to the bottom of the dish in the center. The water will drip from the edges of the cloth hanging outside and there will be no danger of drowning of the bees.

A peculiar race, in which the bee asserted her superiority as regards speed, was run in Westphalia a short while since. A dozen bees and the same number of pigeons were liberated at a point three miles from their homes. Although the bees were handicapped by reason of having been rolled in flour to aid in their identification, the first bee arrived at the designated point a quarter of a minute in advance of the first pigeon, and three other bees arrived before the second pigeon.

## WHY DON'T FARMERS KEEP BEES?

### A Few Words to Those Who Fear the Bee's Sting.

EDITOR AMERICAN FARMER: The above question put to most farmers might be briefly answered by saying, "because I don't know how." But, like the Yankee who answered one question by asking another, it indicates the importance of asking why we do not know how, and answering this involves the asking of thousands of others in the multiplied ramifications leading from it. Please do not expect me to answer all, or even very many, for the very significant reason given above—I do not know how.

The answer that would make it clear to one mind might make it doubly obscure to another. What would be convincing to one would have no weight with another. When a new idea is given us on a subject of which we know little, the tendency is to compare it with what we already know, unless we have implicit confidence in the teacher. The child at school having no interest in his studies always progresses slowly. But give him a subject that he fancies and wishes to understand, and lead him to believe that in understanding it he will greatly enhance his welfare, and an interest will at once be created. The successful teacher gives lessons that can be understood, and creates an interest in their comprehension. It takes time to get up an interest in apiarian science, as is the case with most other subjects.

Now, if a farmer wishes his son to follow his profession, let him exhibit it to him in a pleasant light. A farmer's home is susceptible of pleasant surroundings, and he may generally train his son to love it, and feel sure he will not leave it for the counter or anything else, unless greater attractions are offered. What is attractive to one may not be to another; hence the necessity of study and reflection.

Beekeepers who are desirous of promoting this branch of science must present inducements to the farmers themselves, before they have any to present to their sons. Nearly all that have been offered have been presented very unskilfully. One class simply believes that improvements have been made in the modeling of hives, without understanding why they are improvements, and we find some hives patented not because they are improvements, but because they are different from others. They are bought and sold not because they will promote bee-culture, but because money is expected to be won without labor. Practical knowledge of management can no more be bought with a price than capacity for the school-boy. Failure has been the consequence of supposing it could, and to-day 10 or more empty hives can be found piled up as wasted lumber where one can be found containing bees. The result presents but few inducements for the farmer to begin beekeeping. Another class—few, to be sure—endeavor to make beekeeping attractive to the masses. Owing to tht peculiar training of the farmer, and his own ignorance of the subject, their efforts have proved nearly abortive.

It has been shown that one man in this State (New York) secured in one season 25,000 pounds of surplus honey, his sales amounting to over $7,000, and the condition of his apiary being equally as good at the close of the honey season as at its commencement. This is not an extravagant showing. The object of making this statement is to show that there is no lack of honey to engage all the enterprise likely to be enlisted in a hundred years to come. The object of stating the amount collected by one individual was to show the difference in results between the old and the new method of bee-culture.

Beekeeping, like all agricultural operations, is subject to manifold contingencies, both fortuitous and unfortuitous. It is proper that we should, like skilful physicians, examine the subject in all its bearings, and if we discover that which causes or is liable to produce injury, we may possibly prescribe the remedy, and thus guard against some of the besetting dangers.

The fear of stings is greatly in the way of progression. Can we not do something to remove some of the faint-hearted timidity? Only the other day a medical student expressed himself as being in constant fear whenever he came near bees flying—said they were sure to sting as soon as they saw him. It is unlikely to expect him to become a beekeeper, unless he learns that his fears were wholly from groundless prejudice. Every expert beekeeper will verify the statement that bees have no particular dislike for persons unless their actions while handling them are rough. The said medical student should possess the nerve to adjust the fractured bone of a lady's arm, or a dislocated joint, or amputate the shattered remains of a mutilated limb. This all depends on habit. Our training can make us pass the one thing as of no account, while the other would seem most horrible. There may be much done in this line. The person can do but little in studying the nature of bees who is thinking constantly of stings, instead of his studies of bee-culture. If he makes the sting a study—it is a broad theme—he must get rid of the dreadful fear of it, or he will not progress rapidly. He may sit down, take the sting, with or without a magnifier, and he will see that it is only a small instrument of warfare, so minute that a puncture in the flesh made with it, would not be realized were it not charged with poison. Now, he will inquire what makes the smart? Examining closer, he will discover at the base of the sting quite a lump, detached from the bee's body—apparently a part of it—saturated with a clear, transparent liquid. It may be seen glistening over the surface before parted from the bee. When thrust into the skin a minute particle of the subtle poison is injected into the nerve tissues, producing the sensation so much dreaded by those not professional beekeepers. When a quiet cluster of bees is resting and is disturbed slightly, they simply put up their abdomens in such a way that their protruded stingers do not touch another bee, and exude a tiny globule, nearly covering it, indicating as plainly as actions can: "You must beware how you proceed further. Just see what the Creator has given us against ruthless despoilers of our homes. You have wronged us for ages. We begin moderately, as you have. Now, we have given you a right; we have given you a sniff; we are able to give you a taste."

If he understands their language and heeds it, and he is judicious, he will set himself to confounding it. He will try to see under what circumsances bees are disposed to sting. He will see when this acrid poison is set afloat in the air, and what effect it has on other colonies. He will see if a quick motion by a person while this poison is being emitted does not attract the special attention of the bees. He will discover that bees, when busily engaged gathering stores, have less time to resent intrusion than when quietly reposing on a cool morning, and that on a pleasant day they are more amiable, and that such a time—during a warm, pleasant day, amid their busy gathering of honey—is the best time to handle them, with a view to avoiding stings. When this poison is floating about all near colonies sniff battle and double-quick to join in the fray, and the student will wonder if any substance will neutralize them. He may learn that smoke of burning rags, wood, and tobacco, thoroughly diffused among the bees, will do it effectually. This has long been practiced. But he will ask if the best way of applying it has yet been discovered, and if he is thorough, he will find it can be applied so effectually and conveniently that none of this poison will be perceptible in the air, and no bee have cause for anger, or disposition to sting. And he may go into the midst of them without fear, nor tremble at the approach of a tiny bee, and can pursue his studies, make discoveries unmolested, and add to his knowledge of the science.

When this is known, this pursuit will appear more attractive and profitable to ladies and children, and even farmer's sons. When we can trace the natural history of the bee as it is, not as it is said to be by many scribblers who have drawn on imagination for theories that can be shown to be void of facts, we shall be more likely to interest the student. Witness the mistake made—almost with his last breath—by one of the most profound naturalists of the age, before a college of students. It was copied by the agricultural press extensively. It was criticized by one who had made this branch of natural history a specialty. Few, probably, would dare sanction the criticism. Not knowing enough of the real history of the bee to decide upon its merits, they would be likely to conclude, as most readers would, that the eminent man was probably the nearest correct. It is our duty to examine all of these things, that we may be able to decide for ourselves and advance science. I have herein endeavored to show that we are not blamable for what we do not know; that we cannot make a thought. But when we have a thought, which, when given to others, would make them think, and we neglect to give it, are we not censurable? In this essay I have endeavored to lay before the readers of the grand AMERICAN FARMER some of the reasons why the people generally do not keep bees; also, some of the good reasons why they should do so. I hope other pens, abler than mine, will endeavor to present the subject more lucidly.

In the foregoing, I have not called attention to one of the important factors of successful beekeeping—the best kind of hive bees, excepting the "Punic" (misnomer) bees, I have kept about all varieties—all of which are susceptible, like domestic animals, of higher culture by judicious breeding. I choose to import queens from breeders situated in the Alps region of Carnolia and Italy, and breed queens from such, selecting the best queens to be mothers of each colony. Anyone who cares to make inquiries of me, and incloses stamp for return, will be answered cheerfully.—C. J. ROBINSON, Richford, Tioga Co., N. Y.

## ARE YOUR BEES QUEENLESS?

### The Importance of Ascertaining Whether All of the Colonies Have Queens.

EDITOR AMERICAN FARMER: It is now time to make sure that all of your colonies are supplied with laying queens. Bees at this time of the year without a fertilized queen are of no value, for the old bees will soon die and there will be no young ones to take their places. Generally several queens in a medium-sized apiary die during the Winter, and as they nearly always leave a few eggs in the hive the bees immediately take steps to raise another, and if the weather is favorable will be apt to succeed in producing a fair-looking queen. But here their labor ends, for there are no drones in the Winter for her to mate with, neither could she take her wedding flight in cold weather; and as a queen cannot be fertilized after she is 25 days old, she becomes of necessity a drone-layer (for a virgin queen produces only drones) of no value whatever, and with the death of the old bees the colony dies.

When it so happens that the bees fail in raising a queen, a worker, which is an undeveloped female, will sometimes take up with the idea that she can take the place of her departed mother and supply the hive with the much-needed eggs. She commences laying, and when the eggs hatch the bees will give the larva the same careful attention that they do a queen's brood, with the exception that they raise the cappings on the worker's cells, and thus makes room for the drone that will hatch from it. It is by these same raised cappings on worker cells that you can discover the presence of a fertile worker or a drone-laying queen. The cappings over worker broods are flat and almost even with the surface of comb, while a worker cell containing a drone will have its capping raised as much as three-sixteenths of an inch.

Those having movable frame hives can easily examine their bees, and by looking into each hive can see what is needed. It is not always necessary to lift out the frames to tell if they have a queen; just roll back the cloth and look down between the frames and you can often see brood close enough to the top to tell whether it is all right or not. If it is worker brood, see if they have plenty of honey, and if they have, close the hive and let them alone for 10 or 15 days, then look again. If short of stores they must be supplied. I believe that the two great enemies of the beekeeper are queenlessness and starvation. If the bees are found queenless, give them another, first removing the drone layer if they have one, or unite them with a weak colony that has a queen. If they have a fertile worker, it is perhaps best not to try to re-queen, as it is likely the new queen will be lost, and the colony be no better off. By uniting with a weak colony you can get some little good out of them. It is considered an advantage to scent the hive with a good perfume before uniting, so as to give the bees of both colonies the same scent and thus prevent fighting.

If the bees are in a box hive or log gum it is harder to tell their condition, but by watching them awhile at work you can note the bees that fail to carry in pollen on their legs and give them more attention. Pollen is used in brood rearing, and where there is no brood, as in a queenless colony, none is needed, and but little if any is gathered. By this sign a good idea can be formed of their condition. For such hives place as near the cluster as you can a piece of comb containing eggs; from this they can rear a queen. Every hive should always have eggs from which to raise a queen. —HUGH L. LYNN, Glenville, Ky.

### The Use of Comb Foundation.

EDITOR AMERICAN FARMER: Beekeepers who do not use foundation in both brood frames and sections are making a great mistake, and if they will try the experiment of filling one hive with it and using none in another they will not be slow to see its many advantages.

With a full sheet in the brood frames or sections the bees have a chance to work to their full capacity; they do not have to wait for a few bees to build down the comb so the rest can operate, but all can work, and the process of drawing out the cells is wonderfully rapid. They will be able to accomplish more in two days, with the aid of the foundation, than they possibly could in a week without, and as the honey flow is sometimes short it often means the difference between a fair crop and none. Recent experiments have proven that it takes 10 or 15 pounds of honey to make a pound of comb—that is, the bees have to consume that amount in order to secrete that amount of wax; so it is evident that we cannot afford to let them make any more than is strictly necessary.

The objection to using full sheets in sections has been that it made too hard a center or septum, and when eating the honey one would notice an unnatural thickness; but this has been obviated by the great improvement in the machines for making the comb, and it is made now as thin as 12 and 13 feet to the pound. We make it so thin that you can read through it.—M. H. HUNT, Bell Branch, Mich.

### Conventions.

Utah Beekeepers' Association.—A convention of this Association will be held on Oct. 7, 1892, at Salt Lake City, Utah. The Secretary is John C. Swaner, Salt Lake City, Utah.

Southwest Wisconsin Beekeepers' Association.—This Association will hold a convention on Jan. 13 and 14, 1893, at Boscobel, Wis. Secretary, Benj. E. Rice, Boscobel, Wis.

### An American Scientist Honored.

A beautiful bronze statuet has been received by Prof. C. V. Riley, the United States Entomologist, from an association of French grape growers. In design it represents a man and woman in French peasant costume returning from the grape harvest, the man, although having his own overflowing basket of grapes, pleading with his companion to allow him to carry her basket also. This present is intended as an expression of appreciation of the practical value of Prof. Riley's labors. The French Government had previously honored the Professor for his services in science applied to agriculture.—*Concord* (N. H.) *Monitor.*

## CORN CULTIVATION.

### Some Results of the Experience of 40 Years.

EDITOR AMERICAN FARMER: In conversation with a neighbor on the proper way to cultivate corn, he remarked that he noticed that most all our ablest farm writers advocated shallow cultivation not over two inches deep, and they certainly knew best. Here, I thought, was the power of influence; but it is not best to follow too strictly the advice of even the best, for all may err.

In cultivating corn there are several things to be considered in deciding how deeply to cultivate. I have from the experience of 40 years in corn culture observed that what proved the best one season would be injurious at another season, and just so with soils—the cultivation best for one soil may be injurious to other soil. Here in Kentucky the earlier corn can be planted in April the better the crop is, yet planted this early the soil is wet and cold and needs for the two first cultivations deep culture. Corn requires warmth, and will not grow rapidly until the ground has become dry and warm. Some soils are much heavier and colder than others, and consequently will require deeper cultivation to warm and dry them out. Deep plowing is more effective. It kills grass and weeds better and dries off the soil more than shallow plowing, because it loosens up more soil, which is then more exposed to the air to dry off and warm up. I know deep plowing will mutilate the roots to some extent. In the early stages of the corn's growth the roots do not spread so widely through the soil as they subsequently do, and if one is broken new roots develop from it promptly more so than when plants are older.

While I advocate deep plowing at the two first plowings, I believe in most cases shallow plowing is best for the later cultivations. But we should in writing endeavor not to be misleading, for experience has taught that some soils and some seasons require deep cultivation all the season.

Now, this very neighbor has followed the teachings of shallow cultivation; but last season, being an unusually wet one, his corn began to fire up and he is now somewhat puzzled over it. His field is as level as a floor, and so much rain filled the soil and stopped the passage of the air. The roots of corn or any plant can no more live without air than can an animal. This field had very good stalks, but the ears did not fill out well. Now, I believe if this man had stirred the soil deeply throughout the growing season it would not have fired up and the ears would have filled out well.

One season being very wet, some few years back, at the fourth plowing I had the plow sharpened and the corn plowed deeply and thoroughly. The corn soon showed that it was just this kind of cultivation it needed, and made a good yield. Then, in 1887, the season being a dry one, at the last plowing I put in new shovel plows to plow it with, and plowed the corn out deeply and thoroughly. But the season being a dry one the corn soon wilted after the plow, and finally began firing up and made a poor yield, while corn plowed quite shallow did not seem to suffer so much from the dry weather. But again, when a boy, my mother rented two fields to two men. The size and fertility of the fields were so near the same that each said they had no choice. Hot, dry weather set in and Mr. Brown ceased working his corn; he said it would not do to stir the soil while the weather was so hot and dry, as it would ruin the corn. His corn only received three plowings. Mr. Wilmore said the hotter and dryer the weather the deeper and oftener the soil should be plowed. The dry weather lasted six weeks, and at the end of it Mr. Wilmore's corn looked as if it had received two or three good rains more than Mr. Brown's. When their corn was gathered, Mr. Wilmore's made by measure one-third more corn than Mr. Brown's, and that of better quality. If Mr. Wilmore had stirred only the surface he might have made more corn, but as the case was, it proved that deep plowing if done often was better than no plowing at all.

One of the most important reasons for cultivation is to continue the elaboration of food in the soil. This being true, it seems proper to cultivate deep all the time. A growing crop takes up rapidly the supply of available plant-food in the soil, and makes it important to secure a good crop that it should be replenished. The soil contains a good deal of food material, but it is not available. Air and moisture decomposes this, and fits it for absorption and assimilation by plants. Taking this view of the subject, it seems if we do not cultivate deeply our crop only gets food from the first two inches of surface soil, most especially in a wet season. I think it would be well for every farmer to take the advice of others and weigh it, with the condition of the soil and the weather, and then act on his own judgment as to what depth to cultivate his crops.—THOS. D. BAIRD, Kentucky.

### Hay Making.

Progressive farmers may hay now much earlier than their fathers did, because they find that the best is made from young grass. The older the grass is, the more of its starch and sugar is changed into imitations of woody fiber. The following analyses of grass ashes are instructive:

| | Young Grass. | Ripe Hay. |
|---|---|---|
| Per cent. of ash..... | 9.32 | 7.73 |
| Per cent. of potash.... | 56.3 | 7.6 |
| Per cent. of soda ..... | 1.8 | 2.9 |
| Per cent. of magnesia. | 2.5 | 3.4 |
| Per cent. of lime..... | 10.7 | 12.9 |
| Per cent. of phosphoric acid..... | 10.5 | 4.4 |
| Per cent. of sulphuric acid..... | 4.0 | 0.7 |
| Per cent. of silica..... | 10.3 | 60.1 |

The constituents in the above which have a value as animal food are the potash and the phosphoric acid, both of which are much more abundant in the young grass. Valuable constituents which do not appear in the ash are also much more abundant in the young grass, as is shown by the following analyses of of dry clover:

| | Young. | Full Grown. |
|---|---|---|
| Nitrogenous matters... | 24.50 | 14.00 |
| Carbonaceous matters. | 35.00 | 32.00 |
| Fats ..... | 7.00 | 3.05 |

The American Association of Nurserymen hold their 17th annual meeting at Atlanta, Ga., on June 10, 1892. Charles A. Green, of Rochester, N. Y., is Secretary.

# THE ORCHARD.

### Cullings.

Young trees may be protected from mice by painting with Portland cement or Paris green.

The Massachusetts Experiment Station has decided that girdling the grapevine weakens the growth and diminishes the crop.

The grape crop of California has been greatly reduced, owing to the severe frosts which prevailed during the first part of May.

Portland, Me., recently sent 13,000 barrels of apples to England on the ship Labrador. This is the largest single shipment of apples ever made from this country.

Statistics show that Maine has exported 986,266 barrels more of apples so far this season than during the same period last year.

Whitewashing trees serves to destroy the eggs of insects and the insects themselves. The addition of a little sulphur to the wash renders it still more useful.

Peach foliage is very susceptible to injury from copper solutions. These must be applied at one-third to one-fourth the strength used on the apple and pear.

In pruning for disease care should be taken not to allow the blade of the knife to come in contact with the spores, for in this way diseases can be carried to other trees. After diseased branches are cut off they should be burned.

Though pruning should be done before the buds have started, late pruning with the grapevine, is better than no pruning at all, or it is at least better than to allow thousands of shoots not needed to take up the growth of the vine.

A great many trees are ruined by being mulched with heaps of stable manure, reaching on either side of the hole in which the roots were planted. This tends to keep the rains from reaching the roots, and manifestly retards the growth of the trees.

The orange growers of Florida have secured two steamships to ply between Jacksonville and Liverpool, England. Each has a carrying capacity of 25,000 boxes, and it is thus hoped to market from 200,000 to 300,000 boxes of oranges each season.

After five or six years of age the raspberry ceases to be profitable. The fruit becomes small and scanty. The best way is to plant a certain number of rows each year, and grub out those which have reached their sixth year.

The bees are the orchardists' friends. It has been proved that blossoms depend upon the bees for their cross-fertilization. They take the pollen from flowers and distribute it among others. The wind is also one of Nature's agents for this work, but the bees do it more perfectly.

Apple scab is caused by the attack of a parasitic fungus which grows on the leaves and twigs as well as on the fruit. It is most common in cool, moist seasons, and often causes injury to the tree. An effective means of holding it in check is to spray with carbonate of copper dissolved in ammonia and diluted.

Though some claim that the spraying of fruit trees with Bordeaux mixture seriously affects the fruit thus sprayed, careful experiments in that line have proved to the contrary. It has been shown that "the amount of oxide of copper remaining in the fruit is so small that a person would have to eat a ton of fruit, skins and all, to obtain the slightest possible injury." But whether the ton of fruit would cause a slight possible injury or not is another matter.

Of course the correct thing to do with an old orchard is to plow it occasionally, but if this is impossible, there is another treatment which will be found very effective in rejuvenating the old trees. Put one or more stout men to work with mattocks or grub hoes, and cut the ground and turf to a depth of 10 inches and from six to 10 feet back from the trunk. This seems to involve an immense amount of work, but is really not so difficult, and fully takes the place of plowing.

### Planting Trees.

It is often difficult to keep nursery trees alive after planting, especially if transplanted at a drouthy season. Valuable trees might often be saved by a knowledge of the right way to plant.

See that the trees you buy have plenty of good roots, free from mutilation; but if the ends are broken they should be smoothly cut with a sharp knife. The trees should be set as soon as received. Have the earth loosened deeply, and let it consist of good soil—good enough for the growth of corn. Be sure to have the hole large enough to admit the roots as they were in their original bed. First put a fine earth and spread the roots out on this. Return about half the earth and pour in a pail of water, mixing thoroughly around the roots. When this is done put in the rest of the earth, and press down with the foot. This method is better than to plant before watering, for very little water reaches the roots when poured on the top of the ground, especially if it is dry.

The ground must be highest next to the trunk of the tree. When well mulched with leaves or stable bedding, the work is done.

After trees are planted they should be cultivated and cared for; if they are neglected they will not flourish of their own accord.

### Fertilizing Orchards.

No man can grow a good orchard without fertilizing the trees in some way. Unless the soil is very exhausted, nothing is better than unleached ashes for the purpose. They contain the potash, which the trees take from the soil for the development and growth of fruit. Ashes tend, also, to compact and solidify the ground, and therefore greatly improve a light soil.

The most important time to begin fertilizing is when the trees are young, and it should be repeated every year. If the soil is poor the second year an attempt should be made to bring up the entire acre of orchard. One way to do this is to grow peas and turn them under. This method has seceeded in a number of cases.

## CODLING MOTH AND APPLE SCAB.

### The Value of Spraying as a Preventive of Both.

From experiments carried on under the direction of the Horticulturist of the Maine Experiment Station, with a view to checking the work of the codling moth, the following conclusions are drawn:

1. All sprayed trees had a smaller percentage of wormy fruit than did the unsprayed.

2. A mixture of one pound of Paris green to 250 gallons of water gave better results than did a weaker mixture; though a mixture of one pound to 320 gallons saved a large percentage of the fruit.

3. The number of windfalls are greatly lessened by spraying.

4. The proportion of wormy fruits among the windfalls was much smaller from the sprayed trees.

5. There is no danger of poisoning from the use of fruit which has been sprayed as directed.

6. The best time to spray probably varies with different varieties, but in no case should any trees be sprayed before the blossoms fall.

7. There is greater liability to injury of foliage from the use of London purple than from the use of Paris green.

A study was also made as to means of preventing or checking the ravages of the apple scab.

Apple scab is caused by the attack of a parasitic fungus which grows on the leaves and young twigs as well as on the fruit. The attack is most severe in cool, moist seasons, and if it occur early in the season, before the year's growth is completed, the trees may be seriously injured.

Spraying with carbonate of copper dissolved in ammonia and diluted has proved an effective means of holding the fungus in check. The average increase of salable fruit on the sprayed trees, over that on unsprayed trees was 50 per cent., while in some cases the increase amounted to 65 per cent.

A solution of three ounces of carbonate of copper in one quart of ammonia, diluted with 35 gallons of water, was found very satisfactory. The cost of spraying with this solution is about 3 cents per tree for each application.

### Worms Which the Early Birds Fail to Catch.

Perhaps the fruit grower would like to be introduced to a few of the insects which feed on their trees and devour their substance, even though he may know them well by sight, and be yet more intimately acquainted with their effects.

A familiar inhabitant of the orchard is the tent caterpillar (*Clisiocampa Americana*). During the month of July it lays its eggs in a ring encircling the smaller twigs of the apple and wild cherry. When these hatch, the young caterpillars spread themselves a tent of silken web, under which they revel when not feeding on leaves. They are usually within easy reach, on the lower branches, and may be taken off with the hand and crushed under foot. Their webs may be readily seen when the sun's rays shine horizontally on the trees. A few hours' work in the morning and evening will before very long rid an orchard of them, but if they are left to have their own way, they can make an orchard look like the month of December in an astonishingly short time.

Spraying with arsenites, together with the hand work, is the best remedy.

The curculio (*Conotrachelus nenuphar*) appears quite early in the season, probably before the fruit forms. It makes a crescent-shaped puncture in which the eggs are laid, and it feeds on both fruit and foliage. Besides spraying, these may be dispatched by jarring the tree and catching them as they fall, in a large cloth, when they may be destroyed. The best way to shake the tree is to insert a small plug in the trunk or large branches and strike sharply with a hammer.

The codling moth (*Carpocapsa pomonella*) produces most of the wormy apples and pears, and is one of the greatest pests. It hibernates during the Winter under the bark of trees, and in storerooms, that is, where fruit is stored, and comes forth ready for the fray when the trees are in bloom. The eggs are laid in the calyx of the apple and pear. The worm hatched makes its way into the core of the fruit. After it is full grown it emerges through a hole previously made, and thus leaves the fruit with only half its right value. There are two broods of this insect. The first causes the fruit to fall early, and the last causes the wormy Winter apples. They may be trapped by bands of cloth or paper wound about the trunk of the tree, from which they may be gathered and crushed. But arsenical spraying must be added in order to suppress them.

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# THE DAIRY.

### Skimmings.

Butter floats better when cold water is mixed with the buttermilk.

It is estimated that six oleomargarine factories in Chicago displaced last year the product of 300,000 cows.

In England, the consumption of butter averages 13 pounds annually for each man, woman, and child.

Milk should not be allowed to clabber before the cream is skimmed, as in this way a great deal of the cream is lost.

Persistent losing of health and flesh indicates that a cow is suffering from some ailment, and her milk should not be used.

A cow's simple cough may sometimes be cured by mixing a handful of whole flaxseed with wheat bran slops, and feeding it morning and night.

It has been shown by recent experiments that fresh cream butter is more apt to taste of the food given cows than when the cream is ripened.

Cows fare much better on mixed feed than on any single ration. Cheap feeding seldom pays, but much cheap food can be advantageously used by combining it carefully with more expensive food.

To aid in the production of good milk, a cow's food should always be pure and clean and of a good quality. A good article cannot be procured from a cow which has been allowed to eat bad-tasting weeds.

For young calves, a fair substitute for milk is to be found in hay-tea. To prepare this, about three pounds of hay should be cut so as to get it in a boiler or kettle, and it should then be boiled with two and a half gallons of water for half an hour. After straining and returning to the kettle, a teacupful each of flaxseed and wheat middlings should be added. It should be fed while warm.

The dairy interests of the country are materially advanced by the efforts of the American Jersey Cattle Club. This organization meets annually in New York City, and its membership is scattered over 36 States and Territories, and also extends into Canada. Up to last December the number of cattle registered was in the neighborhood of 95,000, 26,000 being males, and the balance females. Ten thousand dollars has been appropriated for the exhibit of this Club at the World's Fair.

In Denmark, the butter trade is assuming large proportions, and there is a steady advance in the art of making a first-class article. Co-operative dairying is becoming universal. The co-operative carts drive along the roads and collect the milk. The contracting farmers pledge themselves to keep the milk cool with ice, and not to mix two milkings until they shall have cooled. The milking is always done with dry hands, the cow's udder is carefully wiped, and the pails are always kept perfectly pure. Only such persons as have farms with healthy, superior cattle are allowed to co-operate. The butter produced by this system is superior to all European products.

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## DAIRYING FOR PROFIT.

**Getting the Cost and Product of Milk, Butter, and Cheese Down to Absolute Figures.**

EDITOR AMERICAN FARMER: In the last issue I tried to impress upon your farmer readers the importance of great care in selecting cows for any special branch of the dairy business they might choose. It would be no more idiotic for a merchant to continue selling a large portion of his goods below cost every day and have that amount of his trade eat up the profits made on his other sales, than it is for a farmer to keep cows that do not give milk enough or good enough to make them earn a daily profit. The farmer should know his cost of production as well as the merchant, and there is no law to prevent it.

Feed for the dairy should be produced upon the farm, and the rations so balanced in quality that the best product can be obtained. In our Northern and Middle States the luxuriant green grass of pastures in May, June, and forepart of July is perfection. No man can excel it with other foods. It gives the most delicate flavor to butter and its richest golden color, and is the true pattern of excellence all dairymen should strive to imitate other seasons of the year, and this is the problem to solve. To do this we must supply other feed by soiling that is succulent and will help to carry an even flow of milk the year around and still not require a cash outlay or be beyond the reach of the common farmer. A small field of sweet corn planted near the dairy barn, with very early, medium, and late varieties for maturity, is the best soiling crop a farmer ever raised to keep up his flow of milk and quality. About the middle of July in our section of country, or the latter part, this is just in good roasting-ear stage, and as soon as the hot, dry Summer weather approaches you should commence feeding it generously to the cows. Be sure and let it mature enough before you commence to feed to develop the highest point of saccharine matter in the corn plant. A small wagon load of this should be hauled to the dairy barn about twice a week, so that it will be no trouble to have it handy to feed, and it will not then be neglected with the hurry of crop work.

This kind of extra feed is better and cheaper than bran, cottonseed meal or oil meal, and the time spent in cutting it and raising it is no more and costs less than it does to run to market every few days for other feed. One-fourth of an acre of land devoted to each cow will a little more than furnish the full supply needed to supplement pasture grass feed from the last of July to middle of October, and the cows will then hold their regular flow of milk at the lowest minimum of cost. Remember, the whole success rests mainly upon this point.

In every calling of man all manufactured productions are most skilfully pared down to the lowest possible cost. Farmers have no right to neglect this point. Competition forces it upon us, and if we are careless, for pity sake don't blame the calling or General Government because our mistakes cause the ruin.

By the middle of October every dairy farmer in America should have a sufficient supply of nice, sweet juicy ensilage fodder; he can feed his cows fresh and warm from his silos until the first or middle of the next month of May. The ensilage corn must be the largest variety he can raise in his locality, and have it advance to the good roasting-ear stage and nearly hard-glazed corn, so it will produce the largest quantity of saccharine matter possible for the plant. It must be planted and cultivated far enough apart so it will produce the largest yield of ear corn. Immature corn fodder or corn ensilage is no better for feed to stock than highly-skimmed milk is to make butter with.

No arbitrary rule can be given on the planting of corn for all sections of our country, because in the New England States or north corn will give its highest yield when planted not more than three feet apart, while in Alabama or Tennessee it needs to be from four feet six inches to five feet apart.

My feed ration for dairy cows in Winter is all the ensilage morning and night the cows will eat up clean, and it will average a little over a bushel basketful apiece to each cow. In this feed there will be fully four quarts of ear corn cut up, cob and all, and cooked up in silo into its most digestable form for animal food. That amount each cow gets twice a day, and it is a sufficient grain ration for cheapest and best production of milk. At noon I give a light feed of clover hay, and after that in the Winter season they will then drink a good quantity of water, if allowed to do so in a reasonably warm barn, and are not forced to skirmish around some old ice pond for water and get hooked out of the hole by some other animal before they get half enough for a drink.

A Winter feeding of cattle on ensilage and clover hay in this manner for six months each year does not cost me to exceed $8 per head, and add to this Summer pasture and soiling at a cost of 30 cents per week more, and $16 will be the total needed cost for the yearly feed of a dairy cow upon the farm; and with a yearly average of 250 to 300 pounds of butter per cow, who is to blame if the farmer does not make money? I have owned a flouring mill many years, and it is located about 50 rods from my dairy barn. I have tried all manner of mill feed for the production of milk; have fed cottonseed meal, oil meal, and every such ration ever recommended by dairy writers, but milk produced from such food costs fully 3 cents per quart, and no man can get that price for it on the average if made up into cheese or butter. Large milk dairies near cities can afford it when they sell the milk. I have fed dairy cows grain rations the year around and forced the cows to give a much larger flow of milk, but I lost money every day I did so. It cost me $40 per year or more to feed a cow at $16 cost. My milk does not cost over 1 cent a quart, yearly average. I found from the management of eight different cheese factories that for whole cream cheese it requires five quarts of milk (or 10 pounds) for a pound of cheese. The whey from cheese will not quite pay the expenses of its manufacture, and 10 cents net per pound for whole cream cheese for the annual product is a very large price. We have a very large butter creamery here, and in figuring the returns from it several years, I find it requires 12 quarts of milk on the average of all dairies for a pound of butter. The sweet-skim milk and the butter milk from churning, however, is worth twice as much for feed purposes as the entire cost of manufacture, and butter and cheese both can be produced at a good profit with milk at a cost of 1 cent per quart.—H. TALCOTT, Jefferson, O.

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Pennsylvania has a peach tree which has borne fruit for more than 40 years, and which is still thrifty and bearing well.

### Stable Talk.

In Queensland, horses are so plentiful that good animals can be bought for $5 apiece.

It is estimated that $10,000,000 worth of horse and mule meat were sold in Paris during 1891.

Oats are preferable to feed horses as they contain a greater proportion of flesh-forming elements than corn.

A fire in Glenmore, N. J., recently resulted in the loss of 28 valuable horses, one of them being the stallion Prince Allen.

Greeley, Colorado, boasts of having the largest ranch devoted to blooded horses, 80,000 acres being used for the rearing of the stock.

A little act which often serves to start a balky horse is to lift his forefoot from the ground and strike the shoe a few blows with a stone.

A stable should always have a proper supply of light, as emerging from a dark quarter into the glare of the sun is apt to injure a horse's eyes.

The fastest foreign-bred trotter is Conte Rosso (2.22, made at Florence, Italy, in 1891), sired by Ellwood Medium, son of Happy Medium; dam, an Orloff mare. —*American Horse Breeder.*

Stanstead, Quebec, is to have a three days' fair on Aug. 23, 24, and 25, and $4,000 in purses and premiums are to be trotted for. The exhibition will be under the auspices of the Stanstead Live Stock Association, of which Louis P. McDuffee, of Stanstead, is Secretary.

A new instrument that possesses value and novelty is a speculum for examining horses' mouths. It is the invention of an Illinois man, and consists of a bit broad enough to keep the horse's mouth open and an arrangement of reflectors to determine easily the condition of the throat and mouth.—*Baltimore Sun.*

Breeders who have paid more attention to pedigree than size, conformation, style, and other valuable qualities are learning that fashionable pedigrees, when not accompanied by good individuals, don't bring fancy prices. Merit first, pedigree second, is a good motto.—*American Horse Breeder.*

An interesting exhibit of horseshoes will be prepared for the World's Fair by Peter Neilsen, who served for five years without wages in Denmark, in order to acquire a perfectness in this line of work. His work will be exquisitely finished, and will embody all the points required in shoes for modern use.

### MANAGING A BULL.

**He May Be Made a Useful Helper About the Farm.**

We have a thoroughbred Guernsey bull, now five years old, that weighs 1,800 pounds. When less than a year old we taught him to do the churning on a one-horse tread power. I would say here, for the benefit of anyone who may wish to teach one to work on a power, the first time you try putting him on select some day when you are in no hurry, for a little too much haste may frighten him and cause serious difficulty. We found ours was very fond of apples, so I took a pail of apples and coaxed him along by giving him one at a time. As he had been previously well broken to lead, he found himself well up on the power before he knew it. I then put a box in front of him and put in some apples and a little meal. Two or three times thus feeding him apples and then by putting some in his box he seemed to expect them, and would walk on as good as any horse; in fact, a little better than any of our horses, because he is more careful getting on and off the power.

For three Winters he has done all our sawing, and he will beat any horse at that I ever saw. For sawing we have him shod, but it is not necessary for churning. We have never tried to see how much he could cut in a day, but have frequently run him for half a day as fast as we could get logs on without his showing signs of tiring out. We cut a maple log that made a cord of wood in 25 minutes. He churns every day except Sundays, and is as gentle as any calf. I am reluctant to part with him, for I find him about as serviceable as any horse on the farm. I am planning to have him still further earn his living by breaking him to work alone.

I think if every farmer who keeps 20 or more cows would buy a tread power and teach the bulls to do the churning and wood-sawing he would find it a paying investment, besides we should hear less about vicious bulls. As stockgetters they are improved by daily exercise of this kind. Besides doing all the churning, ours saws from 50 to 80 cords of wood each Winter.— *Correspondence Hoard's Dairyman.*

The *Agricultural Journal*, published by the Department of Agriculture of Cape Colony, February, 1892, says: "The great falling off in exports to the United States of America, owing to the McKinley tariff, and to some other leading South American and Continental markets, is accountable for the depression."

## SWINE.

### RAISING A HOG.

**How to Do It on Scientific Principles, With the Sympathetic Assistance of Your Wife.**

Did you ever experiment, or did you ever try to raise a hog on scientific principles, and make him weigh 300 pounds in nine months' time, on a total expenditure of 30c.? You say no. Well, I am sorry, for you have lived a vain, useless life, and will go down into an unhonored grave, leaving no history or reputation behind you for your children and grandchildren to live upon and lie about. What is a brighter or more glorious legacy to leave behind you than one based upon the immortality of fame? The scientific researches and invention of man sink into a pusillanimous insignificance compared to the man who makes two hogs grow where but one grew before. But I always felt proud of Demosthenes after he made his celebrated remark, when he said that it was not necessary to be a hog yourself in order to raise one. This brilliant remark, although uttered in a careless, off-hand manner, sank into my very soul clear up to the hilt, and the flood of sunshine that entered therein and illuminated the cavity in such a way that I was convinced I was not a success as a common poet, and had better see what I could do in the hog line.

I consulted my wife about it, who was only prevented from being a fairy on account of 300 pounds avoirdupois she was obliged to carry around with her. She became an enthusiast at once, as she always does on the subject of spending money, and said, dear hubby, you may still have a future as well as a past, and I will help you make that hog come in on schedule time with his 300 pounds of fat with him in his valise. She said a hog would be so much company for her that she would never miss me when I was away from home doing church work, rioting with the crusaders, or acting as chairman of the smelling and tasting committee. We consulted many honest farmer friends who had small pigs for sale for a mere nominal price, and ye gods, how luck follows a man when he strikes the right lead. After seeing about a thousand piglets we finally purchased for $2 a beautiful brunet pig, with heavenly bright, laughing, blue eyes, and such a smile you would think he (for he was a masculine hog) was looking for a chance to "come out" for something that Fall. He had an honest look, and gave us confidence in him at once. You could see at a glance he was no ordinary animal, and proudly wore a pedigree. His owners could trace his ancestors back through a long proud line of King and Queen hogs, clear back to the time of Queen Elizabeth (I think he selected Elizabeth out of a compliment to my wife, as that is her front name) and told me with tears in his eyes that he was giving me the hog for $2, but I learned afterward he had sold 50 for 65 cents a piece.

* * * *

Well, to make a long story short, the Summer came and went, so did 100 bushels of corn. The corn went into the hog; but the Summer went further south to get into Winter clothes. It was now Nov. 12, and the hog weighed 35 pounds, although he seemed in his hoggish way to be doing his level best to get there and fill the bill. After making a careful estimate of what he had done and was still to do, I made up my mind he would have to get an Oklahoma hustle on him if he was going to come in with his 300 pounds of freight on time, with no discrimination or rebates on the same.

My wife shared my discouragement, as she always does my money, taking the largest share. She had been faithful to his every want, and always kept a fresh bouquet of flowers near him in a silver vase; while I had to buy a button-hole bouquet from the neighbors. She even sat and fanned him on long hot days in the Summer, while I stayed in the house mending my clothes, which often made me wish I was more of a hog myself. Several hot nights when he seemed nervous and irritable she remained with him all night and sang and played sweet lullabys to him, and sometimes when I felt cross after a champagne supper with the town editors, I would meanly reproach her and say the singing was what ailed the hog and was bringing on heart failure.

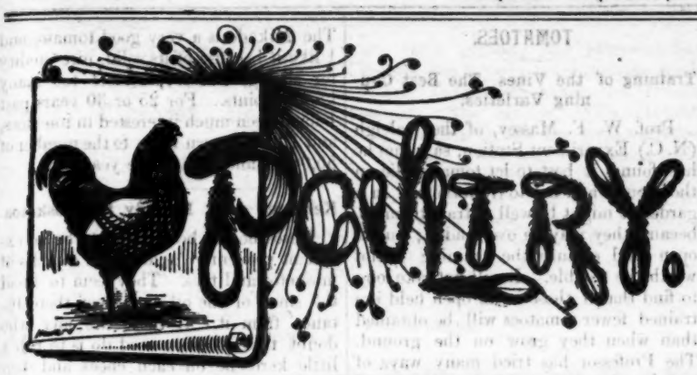
He lingered with us, cheerful till the last, always trying in a true Christian hog-like way to conceal his trouble and not give us pain; but when the curl in his tail relaxed and hung limp and cold I knew his end was near and tried to prepare my wife for the worst. One bright crisp morning he expired in my arms, with his eyes turned aloft seemingly trying to say something that was evidently on his mind. My wife, who thinks she is a mind reader, thought he wanted to say something out of the Bible, something like the Lord never closes one door but what he shuts another, and claims to this day that Christian science would have saved the Major.—JAS. D. GALLOWAY, Kingman, Kan.

### A White Haired Pig.

Some 40 years or more ago Thomas Selby was a hotel keeper in Columbia. Much of the travel over the State was then done on horseback, and a stable was a necessary accomplishment to a hostelry. In his stable Selby had a number of hogs to eat up the grain that would otherwise be wasted. Among the hogs was a white pig that grew so rapidly that he determined to see its full development. The shoat grew to the dimensions of a large hog, very fat and almost helpless.

Such was its rapid and enormous development that not only Mr. Selby, but the citizens generally took an interest in the burly swine, and hundreds of curious people went to see it during its life of two or three years.

The hog was put in a pen and fed all it would eat—no small quantity—until the pen became too small, and it was turned out, and was either driven or wandered into the stable. Here the porker took possession of a horse stall and grew till when lying down it comfortably filled the stall. The impression is it was weighed before death, and that its weight was about 1,213 pounds—perhaps something over that.—*Fulton (Mo.) Gazette*




### Cacklings.

The quickest way of fattening a fowl is the most profitable one for the poultry raiser.

For turkeys, an open shed with an elevated roost is better than a closed house.

Leghorns are probably the quickest maturing of all the fowls. They are, therefore, the most desirable for market purposes.

Exercise is essential to the good health of a fowl. If there are any fowls which do not take exercise it is well to watch them, as something is wrong.

Oats, in addition to being a muscle-forming food, contain many of the elements which go into the composition of an egg.

With the approaching warm weather care should be taken to keep the drinking dishes clean and well supplied with fresh water.

For the cure of chicken cholera the fowls should have mixed with their food once a day a solution of carbolic acid and water. One dram of acid should be used to two gallons of water.

The time to begin the regular picking of the feathers of ducks and geese has arrived. This can be made profitable without interfering with she egg production.

It is well to have plenty of drinking water near at hand for ducks. In eating they are frequently choked, and the manner in which they swallow the water dislodges the matter in their throat.

Oats should be substituted as much as possible for corn during the Summer. The corn should, however, be given as the evening ration. Corn, as is well known, is a heat-producing food, and for this reason its use in the warm Summer weather should be limited.

Do not neglect to build a silo for the poultry. The green food given them during the Winter will not only be a delicacy to them, but will greatly aid their egg productions. A silo four feet each way will contain enough ensilage to supply over 100 fowls during the Winter.

There are few poultry-raisers who resist the temptation of putting one or two or more unfitted fowls among the select ones he is sending to market. This is ruinous. He may sell the lot as select fowls in one or two cases, but the deception is quickly found out and the price of the fowls decline. After he has once secured this reputation it is likely to stick to him, even though he discontinue the deception.

France is probably the most successful poultry-raising country in the world, outside of China. Recent returns place the number of fowls in that country at 45,000,000, or more than one to every inhabitant. The number of laying hens is placed at 35,000,000, and the value of their eggs is over £7,250,000, or $36,250,000. The value of the fowls consumed annually—including capons and chickens—is £1,200,000 or $6,000,000.

### The Question of Space.

Probably the question of how much space to allow to a hen for running and roosting purposes has given poultry-raisers as much trouble as any other question. In fact, it is still a question of dispute, and it is not likely to be settled soon. Although some poultry authorities have fixed a limit as to the smallness of the space given, yet their decision is not generally accepted.

A great many people take the 10 square feet rule; that is, they allow each chicken a run of 10 square feet. This rule seems to be misleading, and they interpret it to mean 10 feet square. There is a big difference between 10 feet square, and 10 square feet. If a plot of land is two feet one way by five feet the other, there is 10 square feet contained in it. That is, we multiply the length by the breadth, and this will give us the number of square feet in the ground. A piece of ground 10 feet square, which means that each side measures 10 feet, contains 100 square feet. Thus, the difference between 10 square feet and 10 feet square is very apparent. Allowing this amount of space to each chicken is sufficient, and, with proper treatment, there is no reason why the fowls should not thrive. It is noticeable, however, that all the authorities do not place any limit as to the largeness of the run, and if more than 10 square feet can be given to each chicken it is so much better.

The breathing space which the hens should have in their houses is, like the question of runs, in dispute. A human being, according to scientists, should have 230 cubic feet of air per hour. A chicken does not, of course, require as much air as a human being, its respiratory organs being considerably smaller. The lowest limit which has been fixed for a fowl is eight cubic feet, and when this limit is allowed it is best to have the hen house well ventilated, so that the air will be continually fresh. If it is possible, it is well to allow the fowls more than this amount of air, and if they are given less, well—perhaps, all of you know the effects of overcrowding.

For an example, we will take a poultry house, the dimensions of which are seven feet wide, 20 feet long, and six feet high. Multiplying these dimensions together, we get the number of cubic feet space inclosed, which is 840. If we allow each fowl eight cubic feet of space, this house will contain 105 chickens. We think that it is best if each fowl is given 12 cubic feet of space, in which case the house would contain 70 chickens.

### Lice on Small Chicks.

More young chicks are annually killed by lice than by all other diseases combined. Some people may say that their chicks are free from lice, but their statement can be doubted. I feel certain I am correct when I make the assertion that all chicks are more or less lousy. The lice on the head, however, are the ones which cause such dire results. If one will take the trouble to examine the head of a small chick he will not need a microscope to discover the vermin. Their presence there can be traced as coming from the mother hen, and if proper precautions had been taken when the eggs were placed under her, these head lice would probably have never appeared on the chicks.

It does not take long before the presence of the lice is manifested by the condition of the chicks. They will go around drooping, eat very little, if any at all, and remain by themselves. This is the critical period, and unless some action is taken to kill the lice the chicks will die. They may live a short while after these symptoms appear or they may live a few days, the symptoms becoming more and more apparent, but in almost all cases the result is death.

When the chicks begin to droop then is the time for immediate action. Burn the nest in which they stay at night, and make a new one of clean straw or other material, liberally interspersed with tobacco stems. If these stems are not obtainable, then give the nest a liberal sprinkling of pyretheum, commonly known as Persian insect powder. Treat the mother hen with the same dose, paying special attention to the space under her wings. Catch the chicks and rub a little lard on the tops of their heads. Care should be taken when doing this, as it may prove more fatal than the lice, inasmuch as it will not only kill the chicks but the mother hen also. Just the least bit of lard is necessary and it will do the work well. If after the first few days the condition of the chicks is not improved as much as could be expected, give the heads another touch of the lard, and this is certain to be effectual. Kerosene oil should not be used under any circumstances.

### The Rabbit Pest in Texas.

It is estimated there are 500 jack rabbits to the square mile in central and western Texas; that 20 of them will eat as much as one cow. This would equal the food for 25 cows to every square mile.

A legislative act provides a bounty of $1 a dozen for rabbit scalps, half to be paid by the State the balance by the County in which killed. In Midland County, Tex., $1,113 was paid in one day for scalps.


## NICKEL SILVER TABLE WARE.

We have secured, for the benefit of our subscribers only, a line of Table Ware which for style and beauty cannot be surpassed at less than double the price elsewhere. It is a new thing, also, and most of our readers have, beyond doubt, never seen a specimen of it. It is called nickel-silver, and is a compound metal intended to take the place of the old-fashioned German silver. In place of the brassy look of the German silver it has a slight steely tint, by which alone it may be told from pure silver. It is very hard and very strong, at the same time of light weight. It takes a higher polish than silver, which it will retain until worn out. It is the same material clear through, there being no plate of one metal upon a base or core of another. It is 21 per cent. of pure nickel. Being too hard to stamp, they are cast and polished in the plain tip pattern. This is the pattern in which the old-fashioned Sterling spoon was made, and is familiar to all. Owing to the strength and high quality of the metal, they can be made with more slender handles than the plated ware, and for this reason the model of the Sterling silver spoon has been adapted to it. We are confident this ware will please our patrons, as it can be polished or scoured as much as occasion requires, and the same care is not necessary in handling it in the dish-pan as with plated silver.

A set of six tablespoons will be sent, postpaid, to any subscriber for . . . . . $1.35
A set of six dessert spoons for . . . . . 1.15
A set of six teaspoons for . . . . . 80
A set of six forks for . . . . . 1.35
A set of six dessert forks for . . . . . 1.15

These sets all comprise six pieces. By the dozen they cost just twice as much as by the set of six. We will send as a free gift a set of teaspoons and tablespoons to anyone who will send us a Club of 6 yearly subscribers at $1 each.

Or a set of teaspoons, tablespoons, and medium forks for a Club of 10 yearly subscribers at $1 each.

Or a set of teaspoons, tablespoons, medium forks, and dessert forks for a Club of 13 yearly subscribers at $1 each.

Or a set of teaspoons, tablespoons, dessert spoons, and medium forks, for a Club of 13 yearly subscribers at $1 each.

Or a set of each of the five articles for a Club of 10 yearly subscribers at $1 each, and $1.50 added money.

Any housewife who will order a set of this ware may rest assured that she will be the envy of her neighbors. Address

THE AMERICAN FARMER CO.,

Washington, D. C.

## HANDY BOX OF MEDICINES.

Every fit of sickness can be warded off if treated in time with proper medicines. A feeling of discomfort and pain generally precedes every serious illness. In the interest of our readers and their families, we have collected in one medicine chest enough standard remedies to keep any family in perfect health for five years if they are properly administered. If your bowels are sluggish look out for peritonitis, typhoid fever, or some kindred disease, and take a few anti-constipation or cathartic pills. If you have headaches or feel oppressed after a good hearty meal, take an anti-dyspepsia pill. If you are generally rundown and feel listless, and especially if you are pale and thin, try a few iron pills. If you are generally disordered in your digestive regions, remember that you can straighten yourself out with a few liver pills. If your bones ache and you feel full of malaria, take a few quinine pills from our Handy Box. Don't forget that the little ailments just mentioned are merely the advance scouts of the thousand diseases that take men off.

This crowning blessing, wrung by patient and persistent effort from the grasp of the drug trust, will afford almost instant relief in all cases arising in any ordinary household. The price of this valuable box is $1, delivered free. The quinine pills alone are worth the amount, and the rest may be considered a premium from THE AMERICAN FARMER. Below we enumerate the contents of the box: 100 Quinine Pills; 100 Liver Pills; 100 Anti-Dyspepsia Pills; 100 Anti-Constipation Pills; 100 Iron Pills; 100 Cathartic Pills.

THE AMERICAN FARMER guarantees the above medicines to be absolutely pure and genuine in every case. Address

THE AMERICAN FARMER CO.,

Washington, D. C.

# THE GARDEN.

### Pluckings.

Hoeing a bed of strawberries once or twice a week will pay enormously.

During the Winter months, radishes may be successfully grown in a shallow box of rich earth placed indoors.

The rose exhibit at the World's Fair will include a garden of 50,000 plants, embracing almost every known variety.

In England, the lilac is variously known as the Princess feather flower, the May plant, the Duke's bills, and Laylock.

All that is required of soil for the cultivation of strawberries is that it shall be of good fertility and of sufficient culture to keep it free from weeds.

When transplanting plants from hotbeds to seed-beds, a good scheme is to thoroughly wet the soil two or three hours before taking up the plants.

Cabbages thrive better when they are set low in the ground so as to make room for a cavity about each plant in which water may be poured each evening when the ground is dry.

Tobacco powder, the dross of cigar factories, can be successfully used to rid cucumbers, squashes, etc., of the pesky, striped bug. This powder at the same time acts as a fertilizer.

The best results will be obtained by changing the seed of potatoes every few years. Potatoes soon deteriorate, and by introducing new varieties occasionally a better crop will result.

For the proper and successful cultivation of asparagus, the soil should be a rich, well-prepared loam, and care should be taken that the roots are spread and well-covered. Salt is the best fertilizer for this plant.

A crop which should be largely grown by farmers is that of Canada field peas. This is valuable as a forage crop, making a palatable and nutritious hay, with a heavy weight per acre. It also serves the double purpose of improving the land while making good returns.

It is highly important that strawberry runners should be cut before the fruit is made. It is necessary, if one is to have fine and abundant fruit. These runners exhaust the plant quite as much as the fruit does, and the two together have much to do with the shortness of the life of a plantation.

Cabbage plants, when required in large numbers, can be grown cheaper than they can be purchased at 25 cents per 100. Enough seed can be bought for five cents to produce 1,000 plants, and there is always plenty of time to grow them before setting them out in June or July for Winter use.

A variety of grape which is fast growing in favor is the Niagara. It has excellent qualities, the berries being large and sweet, and the skin comparatively thin. The fruit is white, with a greenish cast, and upon maturity is inclined to yellow. This variety of grape, for family use, is gaining great popularity.

A desirable addition to the garden is that of a few guinea fowls. These clamorous creatures are beneficial in many ways, one of them being the fact that their noise, obnoxious to some persons, serves to scare off hawks. They eat the various bugs from off the vines, and in their ramblings do not scratch the garden like chickens.

To protect young plants from cutworms, thin paper should be wrapped around the stems when the plants are first set out, to extend about an inch above and below the ground. This is a paying precaution, and will prevent the worms from eating through and destroying the stems. The paper will be removed by the action of growth of the plant.

Attention should be given to this just now and every runner cut by means of a sharp, crescent-shaped push hoe. This will increase the yield of fruit and strengthen the plants, which will make larger stools, and so produce still more fruit next year. By following this method a strawberry bed may be kept in good bearing three years, and then will produce plants sufficient for a new bed.

Strawberries should be set in three plants at intervals of 12 inches apart and with three feet between the hills. This will give over 14,500 plants to an acre, and if each plant bears a quart of fruit—an easy product—the yield will be a total of more than 450 bushels per acre. At three cents a quart the crop will yield $435 per acre, which is a handsome profit for the grower. And there is no good reason why such a yield should not be made, nothing more than careful culture being required.

To get the best results out of strawberries, a bed should be planted every year in July or August, using potted plants. Every runner should be stopped on sight, and thus strong stools be made before Winter. In the Spring the plants should be given a liberal quantity of fertilizer and kept hoed until in full blossom, when some fine-cut straw or swamp moss should be spread under the plants as a mulch and protection against soil on the fruit. If the plants are set two feet apart each way, or in hills, as above mentioned, the ground will be covered with berries, and the yield will be surprising. The runners are kept cut until after the fruit is gathered, when new plants may be grown for a new bed to be treated in the same way. The next year a crop may be taken from the old bed, which is then dug up.

### One Hundred and Fifty Dollar Cabbages at the Hillsdale Fair for 1892.

The Hillsdale (Mich.) Fair will give this year for the three largest and best cabbages on exhibition there $100, and $50 to second. These, we believe, are the largest vegetable prizes ever offered in America. This fair also offers $40 to the best five varieties of apples for market and $20 for second, and the rules require only five apples of each variety to be shown. Like premiums are also offered for the best five varieties of apples for desert, and also the best five varieties for cooking.

The above and other premiums offered by this popular society are open to the world for competition. Entries will close Sept. 27. Fair Oct. 3, 4, 5, 6, and 7, 1892.

## TOMATOES.

### Training of the Vines—The Best Canning Varieties.

Prof. W. F. Massey, of the Raleigh (N. C.) Experiment Station, says that he has found it best to let tomatoes lie on the ground and not to train them. In a garden it might be well to train them up, because they may be overloaded; but in open field culture the training is not worth the trouble. It will not take long to find that if those in an open field are trained fewer tomatoes will be obtained than when they grow on the ground. The Professor has tried many ways of training the vines, and he has abandoned every attempt to train the tomatoes away from the ground.

In speaking of his experience in tomatoes he says: I grew 42 varieties of tomatoes last year, and have as many growing now for experimental purposes. In Maryland the packers use largely a bright-red tomato, avoiding if possible all other varieties. The tomato most largely used in Harford County, Md., is the Queen, a red tomato very similar to the Paragon, bright in color and not too large in size. A large tomato is not wanted, as it will make it more difficult to pack them smooth and solid. I found that of all these varieties the Tree was one of the best for home consumption. While I liked some of the picked varieties for home slicing, for canning purposes there were only two or three which I would recommend—the Brandywine, a very smooth, bright-red tomato, biscuit shaped, and the Queen. I know very little about canning, but I have had experience in growing stuff for canners, and these two above-named varieties impressed me as being the best for canning purposes. There was one variety which used to be grown very largely for the canners, which was called General Grant. I did not think that much better than the name, and I gave it up. The Canada Victor I tried largely, though that had the same fault as the General Grant—it crooked too much. The great fault of the Acme is its color, and it rots worse than any other. I grew the Acme the first season. I grew one variety, when I gave $5 for 20 seeds and made money by it, too. The Cardinal and the Volunteer are both good canning varieties. Cardinal was raised by the same gentleman who raised the Paragon, and he has a new one out called the Stone. I don't think that the Ruby Queen will amount to much; it would take a can for each tomato.

It has been charged that the Volunteer came from immature seed, which produced earlier. I do not see how anyone could say that this variety of the tomato came from green or immature seed. I think that the probabilities are that the Volunteer is from the more mature seed, and from tomatoes which have fallen down from pure ripeness. I do not think that there are facts enough to sustain an idea of this sort, though we do know that seed which are just barely matured—not dried and ripened—will make quite an early product. We know that the grains at the end of a ear of corn will grow earlier and make quicker corn than the other grains, but I think it questionable that they will produce a superior quality or a bigger quantity. The Mikado is a very good tomato, and I like it because of its solid, nice quality for slicing, but it produces too many knotty points. For 25 or 30 years past I have been much interested in tomatoes, and I have grown them to the number of 55,000 plants in a single year.

### Kerosene as a Remedy for Moskotos.

Kerosene has been found to be an excellent preventive against the attacks of moskotos and flies. They seem to dread the smell of the oil, and keep their distance from it. If there are any who doubt this, all they need do is to rub a little kerosene on each cheek and then go where the moskotos are plentiful. The pests will never come nearer than a foot, after they get one whiff of the oil. This simple discovery can be made of great use, and relieve many of the farmer's dumb friends. If a rag or sponge be saturated and tied around the neck of the horses or cattle, it will relieve them of the torment which flies and moskotos cause. It is said that if the saturated rag or sponge be rubbed over the skin of any animal it will rid them of fleas and lice. This is such a simple remedy that there is no harm in trying it.

## BUREAU OF INFORMATION.

Jas. B. Wilkins, Berea, O.—The most of the shooting stars, or meteors, are very small, the majority weighing but a few pounds at the most. Their light is created by the friction of the air, owing to their enormous velocity. They move at the rate of 26 miles a second, which is almost twice as fast as the motion of the earth upon her axis, and about 60 times as rapid as the swiftest shell fired from the most powerful cannon. When they approach the earth from the west, the swiftness of the globe is added to theirs, and they come at the rate of 43 miles a second. The heat generated is so great that the iron and carbon of which they are mainly composed becomes vapor.

Beriah H. Brown, Atlanta, Ga.—You should certainly guard against the evaporation of the water in the fire buckets you place about your barn. Otherwise, they are likely to be found useless at the very emergency against which they are provided. One way is to make a routine duty of seeing that they are full—visiting and replenishing them, say, every Saturday afternoon. Another way is to pour a few drops of oil or grease upon the surface of the water in each bucket, which will prevent evaporation.

Henry C. Maw, Jackson, Miss.—The deepest mine in the world is the salt mine at Spensenburg, near Berlin, Germany. It has reached a depth of 4,175 feet. Its shaft is not perpendicular, however, and it is claimed that the deepest straight shaft in the world is that of the abandoned Kuttenberg mine, in Bohemia, which was an up-and-down depth of 3,778 feet. The deepest mine in Great Britain is the Ashton Moss Colliery, 3,150 feet. The average depth of the French coal mines is 1,003 feet, but a rich vein has recently been discovered at a depth of 4,100 feet. The Comstock mines in this country have a depth of from 1,600 to 2,000 feet. There is a well now being bored near Wheeling which has gone down more than a mile.

## NEW PUBLICATIONS.

"INCURABLE" DISEASES OF BEAST AND FOWL. Published by Boericke & Tafel, 1011 Arch street, Philadelphia, Pa. Price 25 cents.

This is a reprint of James Moore's admirable little pamphlet on Pleuro-pneumonia, to which the editor has added articles on Texas Fever or Rinderpest; Glanders; Tuberculosis in Cows; Roup or Roop, and Chicken and Hog Cholera. The treatment recommended is on the homeopathic principles, which it is claimed has been remarkably successful.

## FLOWERS.

### Roses, Mignonet, Hollyhock, Marigolds, and Poppies.

The Polyantha rose was originally a Japanese dwarf plant, and after being hybridized with that great favorite among us—the Tea rose—it has gained a delicate fragrance that together with its small, prettily formed and very double blossoms makes it deserve its other name, the "Fairy" rose. It is a hardy, low-growing plant, that will survive a moderate Winter, and only in the extreme North requires covering, and because of its low growth is easily taken care of and easily covered. The flowers and buds come out very thickly on the branches. A single rose cannot be used effectively for house decoration, but a branch of the flowers, with the green leaves and buds, makes a pretty decoration for the table or mantel. Of the many varieties the Paquerett, which often bears 30 or more flowers on a branch; the Mignonet, with its lovely little pink roses, and the Anne de Montravel, another white one, the most fragrant of all these roses, are good bloomers. The other varieties are wonderfully pretty and satisfactory.

* * *

A tablspoonful of nitrate of soda in a watering-pot full of luke-warm water for the roses every week will improve their flowering powers.

* * *

Hybrid Remontants are recommended for Northern gardens, because of their strong growth and good blooming qualities. Some of the varieties, however, are not fragrant, and as most people find the fragrance of the rose one of its chief beauties, this is a serious drawback. Some of the fragrant varieties are the Jacqueminot, a beautiful deep red rose; the Anne de Diesbach, with very large blossoms; the Marshall P. Wilder, and the Dinsmore, all red roses. These roses bloom in early Summer and late Fall, with occasional flowers during the Summer.

* * *

Roses should not be allowed to remain on the bush after they are in full bloom. It [illegible] plant just so much strength there.

* * *

African marigolds will furnish [illegible] of yellow for the garden in [illegible] the seeds be planted in May. [illegible] marigolds are not so high growing as the African, and are excellent bloomers. Marigolds grow in sandy soil.

* * *

Mignonet seed should not be planted too thickly. As four or five plants make a prettier clump than a dozen, it is often necessary to thin them out. This can be done easily by clipping off the seed leaves with sharp scissors. If the seeds be scattered among the other plants the soft green of its blossoms will form a pleasant contrast to the other gayer flowers. The old-fashioned and sweetest kind of Mignonet is the *Reseda odorata*. There are newer varieties, some of which are rank growing and have scentless flowers, but there is not nearly so much beauty about them as in the *Reseda odorata*. The Machet, Miles, Hybrid, and Golden Queen are good varieties. Mignonet grows best in a moderately rich, rather sandy, soil. No more seeds ought to be allowed to form than are positively necessary for the next year, as the flowers will be stronger and more abundant if cut often. If some Mignonet be planted in May and more seeds in late June the period of blooming will be longer.

* * *

If poppy seeds be sown with a week or two intervening between different lots the bed will have a succession of blossoms, instead of at one time all in blossom and at another all forming seed. Poppies grow in sandy soil, too.

* * *

Hollyhocks along the wall are very pretty, especially the single pink, or pink and white ones, though the double white and the yellow ones are also pretty. They will bloom from July to September.

* * *

Tea roses are always pretty, and their delicacy in coloring, shape, and fragrance does not seem to extend to their growth, for they give almost always good results. The Bonsilene is one of the most popular of all roses, its buds being particularly beautiful. The La France, another favorite, is often classed among the Tea roses. It has pink petals shaded off to a very light, and sometimes white, color at the edge. Not only are its close buds beautiful, but the flower in full bloom is one of the prettiest of the pink roses. The Sombreuil is creamy white, often tinged with pink, and is a frequent bloomer. The Duchesse de Brabant is a delicate shell-pink rose.

* * *

Roses should have rich soil. Wood ashes are good for them, and plenty of sun, though some people think that if they are protected from the afternoon heat they will be better.

* * *

Old roses, if they are well cared for, ought produce more blossoms than new ones.

* * *

The Cabbage rose, with its pink, fragrant blossoms, is a China rose and a well-established favorite.

* * *

Lavender is rather hard to get started to growing, but is delightful.

* * *

Sweet peas should be given support as soon as they get a good start in growth.

* * *

Peonies require rich, wet soil.

* * *

The rose, with all of its beauty and culture, belongs to one of the largest and most commonly-known families in plant society. Its family name is *Rosacæ*. In this family there are hard-working, useful members, and inconspicuous members that cling closely to Mother Earth as well as the proud and beautiful "Queen of the flowers," the rose. In Spring, when the fruit trees and berry bushes are in blossom, in pink and white, the rose realizes that she is not the only beautiful member of her family, for the apples, apricots, nectarines, crab apples, pears, peaches, cherries, and plums, as well as the strawberries, hips, haws, dewberries, raspberries, cloudberries, and sloes are all her immediate relatives. It is not so difficult to trace from the little yellow five-petalled potentillas that grow wild, creeping in and out among the grasses and other plants, through the cinque-foil or barren strawberry, to the true strawberry; but as the family increases and divides off into different branches, and they fit themselves to their surrounding, the changes seem greater. One develops, from the little silky hairs of the strawberry, prickles, thorns, or brambles. The fruit is sometimes made by the little green cap that covers the blossom in bud, swelling out and growing around the seeds or fruit pieces in the rose. In the strawberry and raspberry the seeds and fruit form on the outside. In the plums there is one hard seed that has a protecting cover of hard substance, and around that a pulpy mass. The increase in petals in the cultivated rose is easily explained, for almost any plant will, under cultivation, develop petals and become double at the expense of the other parts. In coloring, too, all plants progress toward red as a higher color than either white or yellow, blue being the highest; but as yet no rose of that color has been developed.

ELSIE POMEROY MCELROY.

### Square With the Church.

There were two colored men talking in loud tones at the other end of the railway platform, and I walked down to hear what the row was about. One of them was a deacon in the colored Methodist Church in town and the other a drayman. As I drew near, the deacon was flourishing a paper in his hand and saying:

"Dar's de figgers right dar! Yo' owes de church 'zactly fo'teen hundred dollars pew rent, an' I'ze bin sent to see what yo's gwine ter to do 'bout it."

"Fo'teen hundred dollars, eh?" queried the drayman.

"Yes, sah! Dar's de figgers all figgered up by a white man. Yo' haint dun paid no rent in all yo' bo'n days. Does yo' dispute dem figgers?"

"N-no, I recken not."

"An' is yo' gwine ter settle?"

"Fur how much?"

"Fur how much! Why, sah, de committee dun sot upon yo' last night 'till 'leben o'clock, an' it finally dun concluded not to settle dis case short o' two hull dollars."

"I reckon I'll dun pay it," said the drayman, as he pulled out the money.

"Dat's right, sah; dat's right. Dat proves yo' was an honest, upright man. Yo' is now all squar' wid de church, an' if yo' want to git up in a front pew an' do shoutin' nobody ha'n't gwine to pint at yo' an' say de Lawd had dem fo'teen hundred dollars all charged up agin yo' on de gate-post o' Heaben.—*M. Quad.*

Throughout the streets of Paris are scattered about 80,000 trees, with an average value of 175 francs, or about $23. Their beauty and usefulness are ample repayment for the amount expended for them.

### Household Hints.

All sorts of vessels may be purified from long-retained smells by scouring with soap and sand and rinsing well with charcoal.

Butterfly screens are made of tissue paper drawn through a decorated clothespin. Crinkle papers from cotton bats and shoe boxes; paste on bright bits from envelope straps. Use on lamp shade.

Cut holes in pieces of pasteboard and hang pieces up to be used under hot dishes.

Test the heat of ovens with white paper. If it burns black, the oven is too hot; if it browns, it will do for quick cookies, etc.; if the paper becomes yellow, it will do for breads; if it curls up without tinging, the oven will do for meringues.

Sachets for perfuming linen are made of white goods in form of pillow cases. Make very small and fill with rose leaves.

Potato turnovers: Roll out cold-mashed potatoes and bread crumbs, cut into ovals, lay some chopped meat on half, then turn the paste over, pinch it down and bake a light brown.

Fill a bowl with sliced apples, add a few tablespoons of water, press down with cover. Bake three hours. When cold it will turn out like jelly.

A new way of cooking eggs: Beat whites very light and divide equally, placing on large bake pan, lay the yolks, one in each portion. Bake until the white is set.

Japanese ottoman and couch or a stool: Take a square box, two feet square by one foot high. Instead of the top nail in barrel staves to form concave seat. Upholster and cushion.

For a long couch in front of window, nail barrel staves across in same manner, using a long box on frame work.—SUSIE DUNBAR, Box 597, Marshall, Mo.

An inexpensive food for hogs, and one which they enjoy, is to be found in beets. While they are not concentrated enough to serve for a complete ration, they can be beneficially fed to the hogs along with other food.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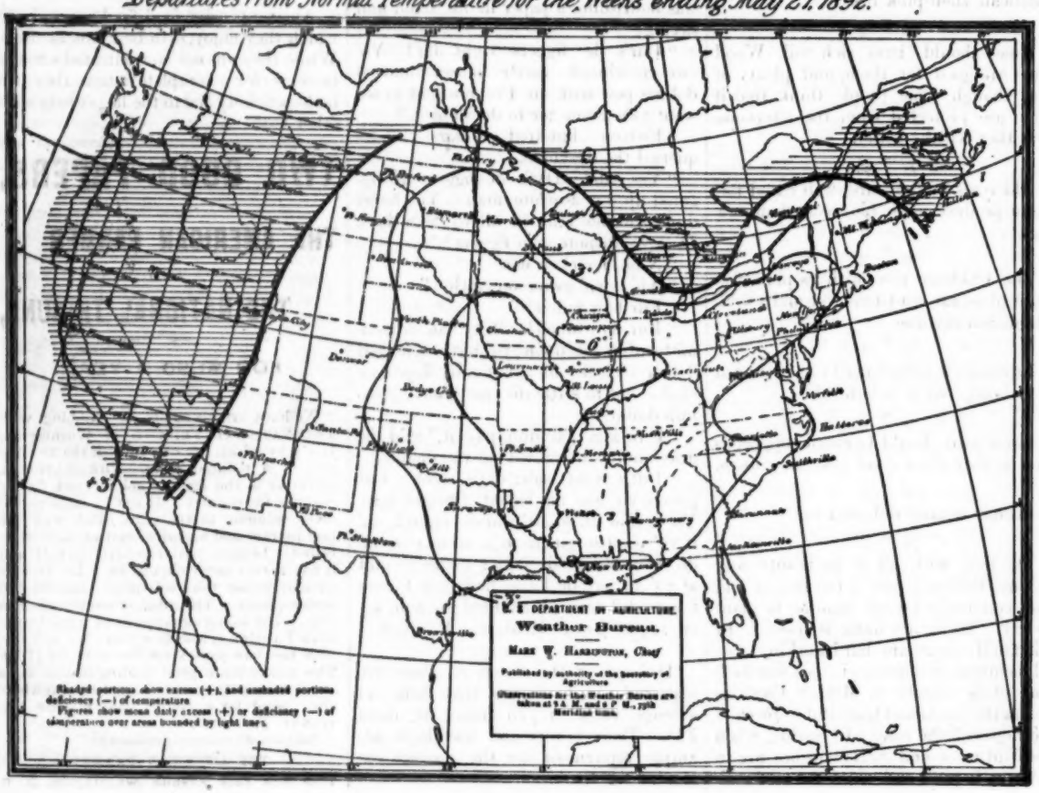
# U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.

## Weather-Crop Bulletin for the Two Weeks Ending May 27, 1892.

*Departures from Normal Rainfall for the two Weeks ending May 27, 1892*

U. S. DEPARTMENT OF AGRICULTURE.
Weather Bureau.
MARK W. HARRINGTON, Chief.
Published by authority of the Secretary of Agriculture
Observations for the Weather Bureau are taken at 7 A. M. and 7 P. M., 75th Meridian time.

*Departures from Normal Temperature for the Weeks ending May 27, 1892.*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U. S. DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU,
WASHINGTON, D. C., May 31, 1892.

### TEMPERATURE.

The season continues late, and the average daily temperatures ranged from 3° to 6° below the normal in all agricultural districts east of the Rocky Mountains from the 14th to 27th of May, although the first week of this period was warmer than usual except in the northwest and in New England, but the week which has just closed was decidedly cold in all districts east of the Rocky Mountains. Reports indicate that the weather has been more favorable for farm work, and corn is being rapidly planted in the West.

### RAINFALL.

Excessive rains have occurred from Arkansas northeastward over the Ohio Valley, lower lake region, New England, and Middle Atlantic States, and also in Minnesota and portions of the adjoining States, while there is a general deficiency of rainfall in the South Atlantic States and over the greater portion of the Gulf States.

The heavy rains which occurred about the middle of the month, causing destructive floods in the central valleys, have been followed by more favorable conditions during the past week, but at this date general rains are falling in the States of the Mississippi and Missouri Valleys, with prospects of severe local storms in Illinois and adjoining States.

### The Canadian Thistle.

The farmers of the South are to be congratulated on the immunity they have from that dreaded pest—the Canadian thistle. South of the 40th parallel the seeds fail to mature, and if there are any plants south of this degree the only way in which they spread is by their roots or rhizomas, which are very hard to kill. The seeds of the plant are sterile in that section, but its roots can penetrate the strongest of soils. During the dry months of July and August the roots can be killed by several soil stirrings. They may also be killed without disturbing the surface of the land by mowing the top of the weed and salting the crown. Two or three repetitions of this treatment will be sufficient to exterminate the weed. The statement that the seeds fail to mature below this degree of latitude may seem queer, but there are seeds of other vegetable matter which will not mature in a different climate. The seed of the Bermuda grass, which grows in luxuriance in the more northern Southern States, will not mature in Louisiana, except in the high and dry sandy section in the southwestern part of the State. Of trees, the fig, the English walnut, and the pecan grow into large trees three or four degrees further north than they produce fruit, except where the tree is carefully protected.

One would hardly expect a man almost four score and 10 years old to take an active part in any farming industry, and yet Oakes Howard, of Winthrop, Me., who is now 88 years old, raised last year on a manured acre 205 bushels of ears of yellow corn and husked them all himself.

## THE MARKETS.

### COTTON.

LIVERPOOL, May 31.—Cotton—Receipts to-day 5,300 bales, all American. Sales, 7,000 bales, 6,100 bales American. Cotton is steady, with but little doing; American middling 4½d. Tenders — bales; cotton to arrive opened easy and closed firm; American middling, May delivery 4 5-6 @4 5-64; May and June 4 6-64@4 6-64; June and July 4 6-64@4 6-64; July and August 4 5-64@4 6-64; August and September 4 11-64@4 11-64; September 4 12-64; September and October 4 12-64@4 13-64; October and November 4 16-64; November and December 4 18-64; December and January 4 20-64d.

NORFOLK, VA., May 31.—Cotton firm; middling 7½c, low middling 6 11-16c, good ordinary 6c; net receipts 394 bales; sales 790 bales; stock 77,474 bales.

WILMINGTON, N. C., May 31.—Cotton is firm; middling 7½c; low middling 6 13-16c; good ordinary (0); net receipts 77 bales; sales 77 bales; stock 11,500 bales.

SAVANNAH, May 31.—Cotton quiet; middling at 7c; low middling 6¾c; good ordinary 6¼c; net receipts 459 bales; sales 650 bales; stock 25,347 bales.

NEW ORLEANS, May 31.—Cotton firm; middling 7 5-16c; low middling 6¾c; good ordinary 6¼c; net receipts 7,455 bales; sales, 1,900 bales; stock 180,927 bales.

AUGUSTA, GA., May 31.—Cotton steady; middling 7½c; low middling 6¾c; good ordinary 60c; net receipts 58 bales; sales 200 bales, and stock 19,508 bales.

### CATTLE.

NEW YORK, May 31.—Beeves. No trade; feeling firm. Dressed beef steady at 6½@7½ cents per pound. Calves. Market quiet. Veals. $3.00@4.50, grassers, $0@0.00; Western calves, $3.25@4 per 100 pounds. Sheep and lambs. Market lower; unshorn sheep, $4.85@6; clipped do. $4.50@5.62; Southern lambs, $6@8.50, and shipped at $6.75 per 100 pounds. Dressed mutton lower, at 10@11 cents per pound; dressed lambs weak, at 12@15 cents. Hogs. Market nominally firm, at $4.90@5.40 per 100 pounds.

CHICAGO, May 31.—Market slow; good to choice steers, $0.00; native steers, $4.25@4.50; others, $3.80@4.10; feeders, $0.00@0.00; stockers, $3@3.50. Cows, $2.60@3.25 per 100 pounds. Hogs. 10,000 head; market steady; rough and common, $4@4.60; mixed and packers, $4.80@4.95; prime heavy and butchers' weights, $4.95@5.07½; light, $4.85@5. Sheep. Market steady; native, $5@5.70; western, $4.20@5.15; Texans, $5.25@5.15 per 100 pounds; lambs, $5.25@5.70 per 100 pounds.

ST. LOUIS, May 31.—Market steady; fair to good natives, $3.10@4.35; fair to good Texans and Indian, $3.60@3.35 per 100 pounds. Hogs. Market higher; fair to prime heavy, $4.80@4.95; mixed, ordinary to good, $4.30@4.40, and light, fair to best, $4.85@4.90 per 100 pounds. Sheep. Market firm; fair to good native, $3.75@5, and clipped natives, $0.00@5.10 per 100 pounds.

WASHINGTON, D. C., May 31.—At Union Stock Yards. Some 167 cattle were offered, and sold as follows: Best at 4½@4¾ cents; good, 3½@4 cents; medium, 3½@3¾ cents, and common, 2@2¾ cents per pound. Some 265 sheep and lambs were on the market, with sales as follows: Sheep at 4@5 cents. Fall lambs, 6@6 cents, and Spring lambs, 5½@8 cents per pound. Cows with calves sold from $20@45 each. Market good for all kinds of stock.

### PRODUCE.

BALTIMORE, May 31.

BUTTER—Fancy creamery 19 cents, good to choice creamery 16@18 cents per pound. Imitation creamery 15@16 cents per pound. Fancy ladle-packed 13@14 cents, prime to choice do, 11@12 cents per pound. Fancy rolls 14 cents, good to choice rolls 10@12 cents per pound. Store-packed 10@12 cents, and creamery prints 20 cents per pound.

CHEESE—The receipts were equal to the wants of trade, and the demand fairly active. The quotations for new cheese were as follows: New York, 60 pounds, 11½@12½ cents; New York flats 11½@12 cents per pound. Picnics, 30 pounds size, as to quality, 11½@12½ cents per pound.

EGGS—The market was steady, with moderate receipts. The quotations were 15½@16 cents per dozen for fresh laid eggs.

POULTRY—Prices steady. Spring chickens, large, 21@22 cents per pound; small, 17@18 cents; old hens, 13½ cents per pound, and old roosters, 25@30 cents apiece. Ducks 10 cents per pound.

VEGETABLES—Prices generally steady, but cabbages were easy and green peas firmer. The quotations were as follows: New potatoes $3.50@4 per barrel; No. 2 $1.50@2 per barrel; good old white potatoes 45@50 cents per bushel; Virginia cabbages $1.10@1.50 per barrel; Bermuda onions, 1.50 per box; Tomatoes, $1.50@2.50 per crate; asparagus, $1@1.75 per dozen bunches; string beans, $1.25@1.50 per box; green peas, $2 $2.50 per barrel; rhubarb, $1.50 per 100 bunches.

STRAWBERRIES—Anne Arundel strawberries are coming in freely, and in very fair condition, as shown by their size and color of the fruit. Quotations were as follows: Anne Arundel strawberries 9@12 cents per box, and Eastern shore berries 5@8 cents per box.

### VISIBLE SUPPLY OF GRAIN.

The visible supply of grain on Saturday, May 28, as compiled by the New York Produce Exchange, was as follows: Wheat 29,448,000 bushels, decrease 1,150,000 bushels; Corn 3,696,000 bushels, increase 924,000 bushels; Oats 3,175,000 bushels, increase 313,000 bushels; Rye 611,000 bushels, decrease 106,000 bushels; Barley 871,000 bushels, decrease 22,000 bushels.

### FORAGE.

BALTIMORE, May 31, 1892.

The following prices for loose hay, straw, &c., were realized at the State Hay Scales to-day:

Eastern Hay Scales.

Hay—Timothy $14@16, Clover $12@14, per ton. Straw—Wheat $8, Rye $10@12, Oat $8, per ton. Ear Corn $2.65@2.85 per barrel.

Northwestern Hay Scales.

Hay—Timothy $14@17, Clover, $12@14 per ton. Straw—Wheat $8, Rye $10@12, Oat $8. Ear Corn, new, $2.75@2.85, per barrel.

### GRAIN AND BREADSTUFFS.

NEW YORK, May 31.—Flour quiet. Southern flour dull. Wheat irregular and quiet; No. 2 red 96@96½c afloat, 96@96½c free on board, No. 3 red 91½c, No. 1 Northern 91½c, No. 1 hard 96½@96½c, No. 2 Northern 86@87½c, No. 2 Chicago 91½c, No. 2 Milwaukee 92½c, No. 3 Spring 85½c. Options advanced ½@1c on decrease in amount on passage, wet weather West and excitement in Chicago, declined ½@1½ on large India shipments and increased English visible, advanced ½@¾c on local trading, closing irregular at ¼c down to ¼c up; No. 2 red May 95½@95½c, June 92½c July 91½c. Rye firm and quiet; Western 86@87½c. Stocks of grain in store and afloat May 28: Wheat, 3,747,506 bushels; corn, 250,633 bushels; oats, 416,323 bushels; rye, 128,100 bushels; barley, 45,499 bushels; malt, 67,390 bushels; peas, 3,511 bushels. Corn quiet, unsettled, and lower; No. 2 57@63c in elevator, 58c afloat. Options—Chicago excitement had little effect upon the market here; prices advanced 6c on May and 1½@2½c on other months. The close shows only 2c upon May and ½@1½c on other months. May 60@64c, June 54½c, July 52½c. Oats irregular and fairly active; spot No. 2 33c, do. white 38c, No. 3 32½@37½c, do. white 39½@39½c, mixed Western 32½@38c, white do. 38@42c, white State 38@42c. Coffee—Options opened steady 5 to 10 points lower; closed steady and unchanged to 5 points down. Spot Rio dull and steady; No. 7 12½c. Sugars—Raw quiet and firmer; fair refining 2 11-16c, centrifugals, 96 test, 3½c; sales 319 hogsheads. Muscovado 89 test, 2 11-16c, ex wharf. Refined firm and in good demand; powdered 4¼@4½c, granulated 4¼@4½c. Molasses—Foreign dull, 50 test 10½c. New Orleans quiet and steady; common to fancy 25@35c. Rice in fair demand and firm; domestic fair to extra 4¼@5½c, Japan 5½@5½c. Petroleum quiet and steady; Refined New York $6.05, Philadelphia and Baltimore $6, do, in bulk, $3.50@3.55. Cottonseed oil quiet and firm; crude 29½c, yellow 31½@32c. Tallow steady and quiet; city ($2 for packages) 4¼c. Rosin dull and steady; strained common to good $1.35@1.37½. Turpentine dull and easy at 29@30c. Eggs in moderate demand and steady; State and Pennsylvania 16@16½c, Western 15½@16c. Wool in fair demand and firm; domestic fleece 31½@35c, Texas 17@22c. Pork quiet and steady. Peanuts quiet; fancy hand-picked 4¼@4½c; farmers' 2½@2¾c. Beef dull. Lard higher and quiet; Western steam $6.07½ bid, city $5.95. Butter quiet and weak; State dairy 14@18c, do, creamery, 16½@18; Western dairy 12@14c, do, creamery, 14½@18, do factory 10@13c. Elgin 17½@18c, imitation creamery 11@15c. Cheese in moderate demand and easy; state 8½@10½c, fine white 10½c, do, colored, 9½@9¾c. Freights to Liverpool weak and dull. Cotton 4d., grain 2d, asked.

CHICAGO, May 31.—A huge inglorious fizzle ended the May Corn deal. The market throughout the day was excited and active to the point of feverishness. On the opening $1 was bid for May by the brokers on the long side. Round lots were sold immediately at that figure, and $1 was bid continuously till about 11:30, when a sudden reaction set in on rumors regarding the financial condition of the chief local concern interested in the deal, Coster & Martin. The price suddenly receded, with trades varying 5 cents at a time, until 49 cents was reached. The other futures sympathized. July declined to 46½ cents, after selling at the start at 48½ cents. The early advance in July is attributed largely to the wet weather all over the West, and initial trades were at 1@3c advance, at 47@48 cents, the price later working up ½c more, declined to 46½ cents, reacted to 47¼ cents, declined to 46¼ cents. At 12:15, on the announcement to close out all trades with the house mentioned, advanced to 47½@47¾ cents on buying in for this concern. The close was 47½ cents, or 1¼@1¾ cents higher than the final quotations of Saturday. Receipts were immense—1,815 cars, which included Sunday's and Monday's work, and 577 cars of the contract grades. In wheat trading was light. The opening was ½@1c higher than the closing Saturday, and held steady for awhile, broke suddenly 1½c on rumors of financial difficulty in the Corn Market, rallied 1½c, ruled irregular, and the closing was ½c lower than Saturday. Oats opened up somewhat firmer, and after weakening as the day advanced on good crop reports, recovered again and closed from ½c to 1 cent higher on deferred deliveries. A fair trade was transacted.

Pork showed a gain of 30c, ribs 20c, and lard 7½c at top figures. The final quotations were up from the close Saturday, 15c on pork and 2½c on lard.

Closing cash prices for grain were: No. 2 red wheat 88½@89 cents, No. 2 corn 48@49 cents, No. 2 Oats 31½ cents, No. 2 rye 70 cents, No. 2 barley 60@62 cents, No. 1 flaxseed $1.02½, prime timothy seed $1.29@1.33. Futures closed as follows:

| | Wheat. | Corn. | Oats. |
|---|---|---|---|
| May | 92½ | 49½ | 31½ |
| June | 93 | 49½ | 31½ |
| July | 93 | 47½ | 31½ |

PHILADELPHIA, May 31.—Flour dull, without quotable change. Wheat. Steamer No. 2 red, 85@85½ cents; No. 2 Pennsylvania red, 92½ cents; No. 2 red, 91½ cents; No. 3 red, May, 91½@91½ cents; June, 91½@91½ cents; July, 90½@91 cents. Corn. No. 2 yellow, track, 54 cents; No. 2, 52 cents; steamer, 53½ cents; ungraded yellow, 53½ cents; No. 2 yellow, 54@55 cents; No. 2 spot and May, 54½ cents: No. 2 mixed, May, 54½@54½ cents; June, 54@54½ cents; July, 52½@53 cents. Oats. No. 2 mixed, 37½ cents; ungraded, white, 39@39½ cents; No. 3 white, 38½@39 cents; No. 2 white, dead storage, 40 cents; do, regular, 40 cents. Butter dull and weak; Pennsylvania creamery, extra, 17@18 cents; do, prints do, 19@22 cents. Eggs quiet and weak; Pennsylvania firsts, 16 cents. Cheese steady; part skims, 7@8½ cents; full skims, 2½ cents. Sugars. Refined firm and in good demand; fine granulated, 4½ cents; standard do, 4½ cents. Feed dull and weak; Winter bran, $15.75@16.50 per ton. Receipts. Flour, 6,400 barrels and 10,200 sacks. Wheat, 80,640 bushels. Corn, 81,700 bushels. Oats, 13,500 bushels. Shipments. Wheat, 4,600 bushels. Corn, 88,300 bushels. Oats, 28,400 bushels.

ST. LOUIS, May 31.—Flour steady and unchanged. Wheat advanced ¼c, early, then dropped 1 cent; later there was a rally and the close was ½c, above Saturday; No. 2 red, cash, 87 cents; June, 85 cents bid; July, 82½ cents asked; August, 80½ cents asked. Corn. July sold 2 cents higher early, but broke 1½ cents later, then reacted and closed 1 cent above Saturday; May and June declined 3 cents and closed 45 cents; July closed at 44 cents; September, 43½ cents. Oats higher; cash, 32½@36 cents; July, 31½ cents. Rye dull, at 75 cents asked; no bids.

### Record of Transfers of Pure-bred American Southdown Stock.

Hamilton, 4908; Hallie, 4907; Grace, 4905, and Grace, II., 4906—H. A. S. Hamilton, Fisherville, Va., to T. P. Hamilton, Auxvassie, Mo.

Wood ewe "68," 4811; Wood ewe "72," 4812, and Wood ewe "73," 4813—Mrs. W. A. Wood, East Smithfield, Pa., to Geo. Noble, Wells, Pa.

Abbie, 2888; Allright, 3990; Secret, 4012, and Kennebecker, 4651—Geo. K. Boutelle, Waterville, Me., to P. S. Longley, Solon, Me.

Light Face, 2280—T. B. Bennington, La Porte, O., to W. U. Noble, Brecksville, O.

Kit, 1236—Uriah Privett & Bro., Greensburg, Ind., to Wm. H. Plass, Silica, Mo.

Jennie, IV., 1910—R. P. Pomeroy, New Castle, Pa., to Ed. B. Fish, Conneautville, Pa.

Jonas ewe "40," 2304, and Jonas ewe "43," 2215—John Jackson & Sons, Abingdon, Ontario, Can., to P. Hubbard, Caton, N. Y.

Jones ewe "46," 1683, and Jones ewe "43," 1687—H. S. Taylor, Fredericktown, O., to G. J. Hagerty & Sons, Hanover, O.

Jonas ewe "41," 2097—T. C. Douglas, Galt, Ontario, Can., to John Rutherford, Roseville, Can.

Jessie, 1894—L. M. Crothers, Crothers, Pa., to W. U. Noble.

Ida, 3808—W. U. Noble to E. W. Snyder, Tollgate, W. Va.

Isis, 1369; Helen, 1796, and Handsome, 2475—John Wenthworth, Chicago, Ill., to Geo. McKerrow, Sussex, Wis.

H. S. T. ewe "10," 3239; H. S. T. ewe "7," 3238; H. S. T. ewe "21," 3214, and H. S. T. ewe "9," 3202—G. J. Hagerty & Sons to L. H. Stevenson, Middlepoint, O.

G. J. H. ewe "150," 234, and G. J. H. ewe "199," 1450—T. M. Hutchinson, New Wilmington, Pa., to W. C. Cummings, New Wilmington, Pa.—S. E. PRATHER, Secretary, Springfield, Ill.

### Astrakhan Sheep.

Sixteen valuable Astrakhan sheep, sent by Mr. Beale, the American Minister to Persia, have arrived in London en route to the United States Agricultural Department. Mr. Moffatt, an attache of the American Consulate here, met the steamer which conveyed the sheep to London and had them transferred to the National Line steamer Helvetia, which sails hence May 21 for New York.—*Daily Telegram.*

It is with satisfaction that the American farmer should notice another type of domestic sheep consigned to the United States Department of Agriculture. We hope to give a more complete description of these sheep than is now possible. This is perhaps the first of this kind of sheep introduced into this country.

Astrakhan is a small dependency of Russia in the southeastern part of Europe, bordered on the east by the Caspian Sea. Its population consists of a mixed people, engaged in rude industries, one of which is the raising of sheep, as interesting as the uses are curious. It is a singular peculiarity of that little known region that all animals bear wool as a conspicuous part of their pelage. The Astrakhan sheep we expect to see is a subdivision of a mongrel race, and gives both white and black wool. Though classed as wool, it is better known in the markets and to the trade as fur. They are the smallest of the three mountain races of sheep found in Russia. Their wool is glossy, twisted in spiral curls, and is of a very fine quality. The most we know of their value is in the demand for their skins. The Astrakhan lamb skins have long been in request by furriers, and are used in capes, cloaks, wraps, and trimmings by fashionable, wealthy people. Vast quantities of these skins are annually exported. The finest of these lamb skins are obtained by slaughtering the mother at the proper period of pregnancy. This practice, so unique and shocking to refined, cultured people, has long been a profitable part of the sheep industry of that country, and adds an interest to the specimens soon to be received in this country.


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This Clock is made specially for us by the largest manufacturers in the world.

It is warranted to be an accurate timekeeper, and is well made and perfectly finished in every particular.

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The clock runs 30 hours after winding.

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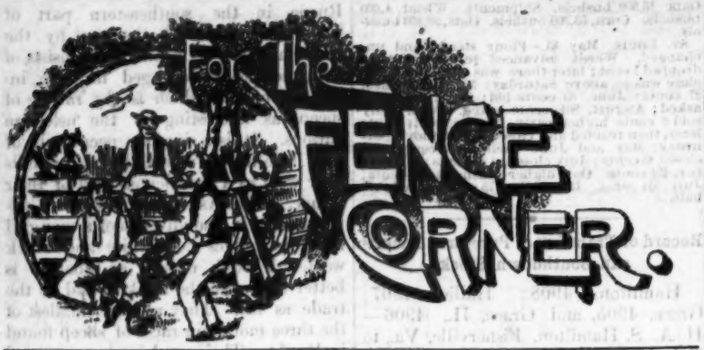


### What Pinched Him.

Judge—You are charged, my man, with stealing a pair of shoes; what have you to say—were you pinched by poverty and want?

Prisoner at the Bar—No-o, divil a bit av it, yure anner—I were pinched be that dirthy, sneakin' blagguard av a cop forninst ye there.

### A Natural Mistake.

Miss Mulcahey—Sure, yez advert'sed for a gurl in that very paper yez have in yer hand.

Mr. Grouty—I know it, but I advertised for a domestic.

Miss Mulcahey—Faith, and that's phat I am.

Mr. Grouty—Oh, excuse me, I thought from your accent that you were a foreigner.

### Appropriate.

Landlord—I should like to have a suitable motto, or, if possible, a text of Scripture, inscribed over my pay-desk; what would you advise?

Tourist—How would something of this kind do? A man went down to Jericho and fell among thieves.—*Humoristische Blatter.*

### A Surprised Frog.

### Inoculation a Failure.

The experience in Australia in regard to inoculation as a preventive of pleuro-pneumonia, anthrax, swine-fever, etc., has been as conclusive as in this country. Everywhere it has been worse than a failure, for it has increased the mortality of the diseases it was intended to prevent or cure. In Australia very extensive inoculations were made to cure lung fever, with disastrous results.

### A Daisy Catch.

Anticipation.

Harrowing doubt.

Brilliant success.

### The Very Thing.

"Porter, I want you to put me into a carriage where there's no smoking or talking, and where the passengers do not keep getting in and out."

"Well, sir, there's the dog compartment!"—*Der Hecht.*

### A Forcible Argument.

Suitor (persistently)—Why do you keep me waiting so long for an answer? Remember that you are growing older every minute?—*Heitere Blatter.*

## A STRING OF RIDDLES.

**Some Good Enough to Provoke a Gentle Sort of Smile.**

What is the difference between Mount Blanc and army "beef?"

One is hard to get up and the other is hard to get down.

When is a bird like part of a stable?

When it's aloft.

What is that which the more you take the more you leave behind?

Footsteps.

When Anna has said good-by to her lover, why is she like some people who are now making themselves notorious?

She is an Anarchist (Anna kissed).

I am twice the age that you were when I was the age you are. When you are the age I am our united ages will be 63. What will our respective ages be?

15¾. 31¼.

Three women in one house each have two children and none leave the house, yet there are only seven people in the house.

One woman has two daughters and the two daughters have two children each. Total, seven.

What joint is it that no one ever cares to partake of?

The "cold shoulder."

Why is a jeweler like a jailer?

Because one sells the watches and the other watches the cells.

What is the difference between a builder and a lover?

One encroaches upon the waste with his handicraft, the other encroaches upon the waist with his crafty hand.

Why are burglars like railway trains?

Because they remove other people's goods without disturbing the sleepers.

What walks on its head all day long?

The nail in your boot.

Why is E the most favored letter in the alphabet?

Because it is the first in Everything.

I am a word of so many letters, denoting a number double my letters. Take away my first letter and I denote a number treble my original number of letters.

Six.

What does man love more than life,
Hate more than death or mortal strife;
That which contented men desire,
The poor man has, the rich require;
The miser spends, the spendthrift saves,
And all men carry to their graves?

Nothing.

### A Rare Sonnet.

(Found in an Autograph Collection of Revolutionary Generals.)

Not all these men were of heroic mold.
Some faltered when the days grew bleak and dark;
Some set ambition as their guiding mark,
And some were born with hearts that could not hold
Firm to the light, when adverse winds grew cold;
But here and there shines out the regal spark—
The soul that never stopped to whisper—Hark!
But onward marched with buoyant step and bold.
And all at times rose to life's higher plane;
Each helped to build the Nation we have seen
Rise to such grandeur, by the victories won
By Marion, Putnam, Schuyler, Poor, and Wayne,
By Morgan, and by LaFayette and Greene,
And, above all, by glorious Washington!

*Thos. S. Collier.*

### Concealed Weapons on One Side Only.

The male wasp never stings, but so long as he and his sister are twins and dress alike, this bit of knowledge availeth not.—*Wilkes-Barre Leader.*

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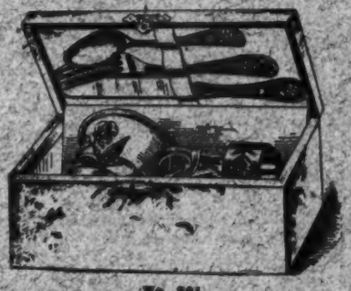

**No. 301.**

This is something fresh from the factory, manufactured specially for our trade. The cut is very much reduced in size, and does not do the articles justice. It is not a toy set, but for a child's use at the table. It is the proper size for a child from the time it is able to sit at the table until it is about 12 years old. There is a knife, fork, spoon, cup, and napkin-ring.

They are manufactured of American Sterling, covered with a triple plate of pure silver. These articles are as good for practical purposes as though made of pure silver clear through. They will never wear brassy, but will always retain the bright white color of silver, all the metal in them being of the same tint. The articles are neatly packed in a beautiful silk-lined plush box. We offer these five pieces, boxed and postpaid, at a price less than that charged for the box alone by the leading silversmiths of New York City.

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In order to save space, all the pieces are shown in one picture. The reader can readily tell which are referred to. The same plates, teapot, sugar-bowl, etc., go with all the sets, but in the larger offers more and more pieces are added to the tea set. All are of the same beautiful style of decoration.

First is

### A 56-PIECE TEA SET.

It consists of 12 plates, tea size; 12 fruit saucers, teapot and cover, sugar-bowl and cover, a creamer, one bowl, one dozen tea cups and saucers to match, one bread plate, and one cake plate.

### DINNER AND TEA SET COMBINED, 84 PIECES.

This beautiful set comprises 12 breakfast plates, 12 tea plates, 12 cups, 12 saucers, 12 fruit saucers, 12 individual butter plates, two cake plates, one teapot and cover, one sugar-bowl and cover, one creamer, one slop bowl, one large meat platter, one large and stylish gravy-boat, and one large vegetable dish and cover, in all **84 Pieces**, making a complete dinner or tea set for any table.

### EXTRA DINNER AND TEA SET COMBINED, 100 PIECES.

This set is the same as the 84-piece set, with the addition of the following beautiful and useful articles, viz: 12 pie plates, one pickle-dish, one water-pitcher, and two bakers, or uncovered vegetable dishes, in all 100 pieces.

### GRAND EXTRA DINNER AND TEA SET COMBINED, 125 PIECES.

This the same as the 100-piece set described above, with the addition of the great turkey platter and one dozen after-dinner coffee cups and saucers to match.

This makes the grandest China premium ever offered entire by us or any other publisher, and at a price below that possible to anyone else.

## HOW TO SECURE IT.

First, the Tea Set. We will send this beautiful 56-piece tea set, by express or freight, for $6.25, or for a club of 10 yearly subscribers and $2 additional; or we will give it free for a club of 20 yearly subscribers at $1 each.

The 84-piece dinner and tea set combined will be sent to any address in the United States as a Premium for a Club of only 10 subscribers for one year and $3 additional, or for a Club of only 20 subscribers for one year and $1.50 in money additional; or we will sell it outright for $8.10. We prefer the Club.

The 100-piece extra dinner and tea set combined will be sent to any address in the United States as a Premium for a Club of 10 yearly subscribers at $1 each and $5.75 added; or for a Club of 20 yearly subscribers and $3 added; or *free* as a Premium for a Club of 33 yearly subscribers. For sale at $10.35.

The grand extra combined dinner and tea set of 125 pieces we will send to any address in the United States as a Premium for a Club of 10 yearly subscribers and $8.75 added; for a Club of 20 subscribers and $4.40 added. Sent as a *free* gift to a Club-raiser who sends in a Club of 45 yearly subscribers. For sale at $13.50.

The China will be carefully boxed and shipped by express or freight, the receiver to pay charges of transportation. Fast freight takes a little more time than express, but it is preferable, unless the goods are needed in special haste; because the charges are very much lower by freight, and, in fact, except to very distant points, amounts to but a trifle.

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### A Beautiful and Durable Watch, With a Nickel-Plated Chain Thrown In.

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This is the name we give to the famous Elgin Watch that is best adapted to the use of farmers in every part of the United States. This watch is complete in every way, and represents the triumph of American skill and genius. The case is made of solid nickel silver, a composition which is handsome and more durable than coin silver. The face is protected by a heavy crystal of beveled plate glass strong enough to bear a great weight. It winds and sets at the stem and need never be opened. The works are beautifully finished, and contain seven handsome jewels, compensating expansion balance, patent safety pinion, improved plain regulator, and other great improvements suggested by years of study and experiment. The parts are interchangeable, and are made of the most highly-tempered metals. Some of the parts are produced with such difficulty that they are worth ten times their weight in gold.

No farmer or farmer's son should be without this watch, which keeps the time so accurately that it needs to be compared with a regulator only once in many months. We have contracted for a large number of these watches, and to make them move quickly we have determined to furnish a chain with each watch. These chains will not be sold separately. They are made of nickel-plated steel and are ornamented with a charm. Thousands of farmers will, of course, wish one of these watches, and our immense supply will probably be exhausted within a few months, so club-raisers and purchasers should allow no time to pass before they try to get one for a club or for cash.

For the present we offer this watch and chain for a club of 10 subscribers and $2.50 added money—$12.50 altogether—or we will send both watch and chain (without the paper) to any address by insured mail for $5.00. With the paper, one year, $4.25.

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# PATENT LINK DOG COLLAR.

We have secured for the benefit of our subscribers the most improved pattern of Dog Collar.

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